Vol. VIII, No. 2 66 February, 1932

SOAP

with which is included an

Insecticide & Disinfectant Section

Published by MACNAIR-DORLAND COMPANY, INC., 136 Liberty Street, New York

DOW COUMARIN

Fixation of the true odor of the perfume used is of prime importance, as the odor of a product is often its greatest sales advantage.

Manufacturers of soaps, cosmetics and kindred products know that a pure Coumarin free from adulterant odors gives the most satisfactory results.

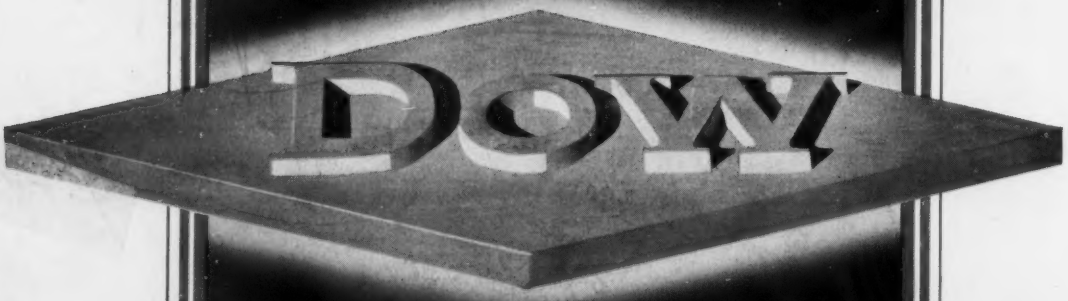
Such a Coumarin is that carrying the Dow trade mark. Supplementing its known purity with ready workability, it is a Coumarin of finest quality for use as a perfume fixative.

Sample and quotation may be had on request.

Other Dow Products:

Paradow, Methyl Salicylate, Methyl Anthranilate, Phenol U.S.P., Carbon Tetrachloride 99.9%, Caustic Soda

TRADE



MARK

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

SOAP

Reg. U. S. Patent Office

with which are included

Insecticide & Disinfectant Section **Oil & Fat Section**

Volume VIII February, 1932 Number 2

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INSECTICIDE and Disinfectant Section, which is included as a department of every issue of SOAP, begins on page 83. Oil and Fat Section begins on page 71. These sections contain news, articles and editorial opinion of particular interest to their respective industries.

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Ira P. MacNair Grant A. Dorland

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Say you saw it in SOAP!

SOAP

VOLUME EIGHT NUMBER TWO

Enough of Subterfuge

OF the total importations of coconut oil into the United States, 62 per cent goes into soap, and another 15 per cent goes into biscuits and crackers, neither use of which can be supplanted by any American produced oil or fat. Some 23 per cent or less goes into margarins. A tariff on Philippine coconut oil would raise the price of coconut margarins only slightly more than a cent per pound.

These facts were brought out in the testimony of J. D. Craig, representing a well-known oil crusher, before the Insular Affairs Committee in Washington recently on the Hare Bill calling for Philippine independence. It is apparent that Philippine independence and its attendant tariff on coconut oil would be of no practical aid whatever to the American farmer.

It is about time that these advocates of Philippine independence, these self-labeled "saviors" of American agriculture, were smoked out by coconut oil consumers, forced to parade under the true colors of the interests they serve, and to abandon their "American farmer" banner.

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If ever their lived an advocate of persistent and consistent advertising, it was William Wrigley. He never quit advertising. Through thick and thin, good times and bad, he advertised. Nobody ever had the slightest chance to forget "Wrigley's." His advertising philosophy carried him through to build a fortune far up into the millions.

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Endorsements

SEALS of approval of the American Medical Association and of the American Dental Association are now being placed upon various commercial products. The seals of the associations along with the words "accepted" or "approved" are being used in advertising and on packages. That there might be merit in this plan if its adoption could become more or less universal, is apparent. At the same time, we can see in it several angles which make the approval meaningless. There are thousands of foodstuffs, medicines, dental preparations, and such on the market, the vast majority of which have not as yet been accepted or approved for the simple reason that they have not been submitted for approval. It would perhaps be a far more simple job for these associations if they were to select the unworthy products and "disapprove" them.

Frankly, we believe that these two associations have stepped down from their long-established position of dignity to

endorse commercial trade-marked products. We do not believe it is one of their functions. The endorsement "racket" has been overworked in this country, and anything which smacks of an endorsement, particularly where that endorsement is used in advertisements, is taken with a large grain of salt by the American public. The associations might well have continued to let endorsements remain the great privilege of our movie actresses and certain so-called leaders of the social smart set.

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The Census of Manufactures

BLANK forms for the 1931 Census of Manufactures have been sent out from the Bureau of the Census in Washington. It is urgently requested by the Bureau that the forms be filled in accurately and returned promptly. Particularly for the year, 1931, the findings of the Census Bureau are going to be of importance to industry. The sooner the figures are sent in to the Bureau, the sooner the composite data for the various industrial groups will be available.

Filing a census return is in no sense optional with manufacturers. According to the law under which the census data are collected, it is obligatory for every manufacturer to report his figures. As long as it has to be done, the return may just as well be made promptly. We urge all manufacturers in the soap and sanitary products groups to aid by sending in their 1931 reports at the earliest possible moment. If you have not received a blank form, communicate with the Bureau of the Census, Washington, D. C.

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But What Of The Odor?

NOW that the product is all ready for the market, what kind of an odor shall we give it? This seems to be about the usual procedure in the case of numerous soaps, shampoos, and sanitary specialties which are regularly finding their way to market for the first time. It is a procedure which has brought a strong protest from several suppliers of perfuming materials. They maintain that the manufacturers of the finished products do not give the perfuming materials houses anything like sufficient time to supply them with the exact product required for the individual purpose.

The complaints point out that months are taken to perfect the product, months to perfect the package, months to obtain the right equipment, and then, the correct odor compound, especially to fit the product in question, is demanded in a week, or sometimes less. As the perfumers state, too many manufacturers believe that the perfume materials supplier has a staff of perfume magicians who need but to hear what is wanted and they will create it instantly. This is certainly a wrong impression. Every odor compound for a special and specific purpose represents an individual research problem. If the perfumer is not given the time to solve the problem intelligently, he most certainly should not be blamed for faulty results.

The odor of any product is one of its major characteristics from the sales angle. If the odor is wrong, it can defeat the very purpose for which it is used. Haste in selection is the easiest way to make it wrong. Give the perfume supplier more time. Consider your odor problem as a major problem, and consider it just as far in advance of actual marketing as the problem of equipment, product, and package.

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A manufacturer of soap specialties was recently complaining about some of the ills which had entered the business during the past couple of years. He mentioned all the usual difficulties, including price cutting and special discounts, and ended by saying that over and above all this, the average manufacturer was expected to act as a private banker for his various and sundry small customers to the tune of three and four months credit terms. The houses which will not extend the long credits, and insist upon prompt payment, merely shut themselves off from future orders. Concerted action by the leading soap specialty manufacturers might whip the offenders into line. But how is "concerted" action to be secured? If somebody would only tell us, we would be tickled to death to tell the trade how to do it.

A Continuous Process for Liquid Soaps

The Possibility of Adapting an Emulsion Machine to Continuous Saponification

A CONTINUOUS process for the manufacture of liquid soap involves a rather new idea for an industry which has always used ordinary kettles with regulation agitating equipment for the saponifying operation. On the supposition that the saponification can be carried out accurately and completely in a continuous process, it is apparent that such a process has advantages in saving time in the plant, and very probably in saving considerable space which is ordinarily occupied by the soap kettles. Of course, there is also to be considered the arrangement of raw material supply tanks and such changes in them as would be required to fit them in as the first step in a continuous process.

For the continuous manufacture of liquid soap, a new type of equipment has been designed, or it is better to say is now being adapted, which is used in the production of asphaltic emulsions, refining of vegetable oils, and for certain mineral oil refining operations. The equipment which is termed a Bethune Mixer, covered by U. S. Patent 1,727,753 issued to G. S. de Bethune of New York, operates on the principle of breaking up the liquids passed through it into extremely fine globules by impelling them against projecting fins by blades on a rapidly revolving shaft to bring about a thorough intermixing. In the case of saponifying a glyceride or fatty acid with caustic potash, the two products would be broken up and admixed thoroughly in the form of minute globules permitting the saponification reaction to be completed with unusual rapidity.

In the manufacture of liquid soap, the operation begins with the storage tanks which contain the oils and the caustic potash solution. In the case of coconut oils and other oils which may be solid at the lower temperatures, it is necessary that the temperature of the oil be raised in the tanks by the usual coils and that its temperature be regulated so that the flow of oil from the tank will be uniform. Where two oils are used in a liquid soap, the feed tanks are arranged separately for direct connection with the mixer. The passage of the liquids through the machine is ordinarily accomplished alone by gravity feed and no difficulty has been encountered is regulating the feeds to flow exactly in the correct proportions as required for accurate saponification or emulsification.

The liquids flow separately into the mixer and are picked up by a series of impellers attached to a central shaft which rotates at a speed ranging from about 1,400 to 3,000 R.P.M. according to the degree of emulsification required and the output desired. The higher the speed of the impellers, the more minute are the globules and the smaller is the output. The blades of the impellers are set to pass moderately close in relation to fins projecting inward from the body of the cylinder of the mixer. It is the passage of the liquids through these close clearances at high speed which brings about a reduction in particle size and gives the intermixing.

As the mixture of liquids is thrown from the blades of the impellers against the parabolic curve of the cylinder inner wall, the curvature of the wall causes it to be reflected again toward the focus of the parabola through which the impeller passes, thus assuring a continued repetition of the mixing and emulsifying effect. The mixer of the type mentioned is built also with two or more mixing chambers arranged in series without by-passes where a progressive emulsification or saponification is required. A very low power consumption compared with the degree of emulsification secured, is claimed.

Soaps have been manufactured experimentally by use of the Bethune Mixer and the resultant products are completely satisfactory, according to the inventor. Where the rate of flow of oils

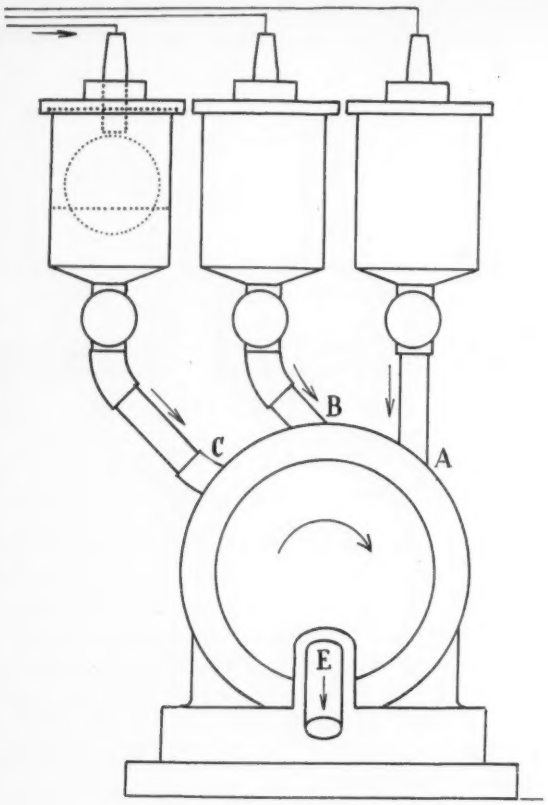

Diagram of the Bethune Mixer for handling three liquid phases showing positions of inlet pipes, A, B, C, and outlet, E. Equipped with tanks for automatic control of rates of flow under gravity. Type for use where two oils in desired proportions are saponified with caustic potash for production of liquid soap.

and caustic potash has been determined in advance, the valves of the feed tanks are set accordingly and test runs are made. Unsaponified saponifiable oil and free alkali are determined. Changes in the rate of flow of oil or alkali are then made to correct for free oil or alkali, and another test run is made, the corrections being carried on until the desired accuracy in the saponification is secured.

Tests during the course of manufacture at regular intervals are made to determine free fat and alkali.

In order that the flow may be constant, the height of the liquids in the supply tanks must also be maintained at constant levels. Where gravity flow alone is used, this may be regulated by an auxiliary feed tank with a float control or some other control device, or a constant air pressure may be used in the feed tanks. Naturally, as the rate of flow of the liquids to the mixer is the most important factor in the accuracy of the saponification, it is necessary that the flow be controlled with an accuracy equal to that desired in the finished product. This, in practical operations, it has not been found difficult to do.

In commercial practice, the single chamber type of mixer is designed primarily for rather fluid materials while the twin-chamber mixer is for more viscous materials. The temperature of the saponification in either case can be controlled just as easily as in the kettle because the mixers are built with jackets, although the unjacketed types are also available. For saponifying oils which are slow to react with the alkali, the two-chamber type of equipment is stated to be more suitable. At the same time, regulation of temperature at the beginning of the saponification and after it gets well under way is possible by the alternate use of heat and cold in the mixer jacket. Because of the small quantities of oil and alkali under reaction at any one time in the mixer, it is stated that a more accurate and rapid regulation of temperature is possible than in kettles containing large quantities of materials and using only ordinary agitating equipment.

THE completeness of the saponification seems to be the most important point involved with the use of the continuous equipment. The rate of saponification of different oils varies with the continuous process just as it does when the saponification is carried out in a kettle. It is stated that complete saponification has been accomplished satisfactorily and with completeness equal to the kettle method. However, for slow saponifying oils showing any appreciable unsaponified oil after having been run through the mixer, the double unit has been recommended. There is also the alternative of slowing down the output of the mixer and increasing the temperature, which would (1) give a longer time for the reaction and (2) tend to increase the speed of the saponification reaction. Running the material through twice where the resultant product may show unsaponified fat, is possible, but it would interfere with a continuous process where a single unit mixer were being used. A study of practical operations embodying these possible difficulties is now being made. It is understood that three and four chamber types are also being contemplated for special emulsification and saponification purposes.

The size of the equipment varies from the smallest models of approximately three feet long by one wide and one high up to the large two-chamber style measuring seven and a half feet long by two and one-half by two feet. The small size running at 1,740 R.P.M. has a capacity of 225 gallons of water per hour and uses only one-quarter horse power. At 2,600 R.P.M. it delivers 130 gallons per hour with one-half horse power,

and at 3,450 R.P.M., 90 gallons per hour with the same horse power. The larger style, running at 1,450 R.P.M., consuming 3.3 horse power, has a capacity of 3,600 gallons of water per hour. The rate of output for liquids depends on viscosity, and varies approximately from the above figures given for water in proportion to the variation in viscosity.

The soap as it comes from the mixer is piped directly to the storage tanks for settling and aging, and is later filtered and prepared for shipment in the same way as any other liquid soap.

In summarizing the claims for the process, the inventor states that there is a saving in plant space by the elimination of the saponifying kettles, that the finished soap is more uniform and closer to exact neutrality owing to better control in process, that once the original adjustments have been made, the process requires the minimum of expert attention, and that it results in a material saving of time, power and steam.

THE continuous method for saponification has been stated to have been used with considerable success in an experimental way in saponifying tallow with caustic soda in producing ordinary soda soaps. Based on the rate of saponification with smaller units, it is held to be possible to handle the initial saponification of a 200,000 pound kettle in one hour with a two-chamber mixer of the proper size. The soap would be finished in the kettle. A very material saving in time, steam and power would be accomplished. Experimental work on small plant scale is now being carried on in the production of regular soda soaps by the mixer method. The possible use of the equipment in the manufacture of rosin soaps and coal-tar disinfectants is also receiving some experimental attention.

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The Law of Patents for Chemists, by Joseph Rossman, 6 x 8½. 300 pages. Cloth binding. $3.50. A comprehensive non-technical discussion of chemical patent law. Essential patent law principles are outlined in one chapter, while another takes up the various steps which must be followed in securing a patent. Rights under patents are discussed as well as methods for determining the validity of patents. A useful appendix includes a glossary of patent terms.

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Modern Beauty and Barber Science, by Adelaide Smith and Reuben Lockwood. 5¾ x 8¼. Cloth binding. 290 pages. $4.00. Publishers, Prentice-Hall, Inc. An elementary text explaining the underlying principles of beauty culture and barbering. Among the topics on which the students of these professions are advised are the use of soaps, shaving creams, antiseptics and disinfectants. While the general instructions are satisfactory, the work is somewhat lacking in scientific accuracy.

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Imports of castile soap into United States during November, 1931, totaled 152,355 lbs., worth $12,499, as compared with 378,045 lbs., valued at $34,335, during the same month of 1930. Imports of toilet soap in November, 1931, amounted to 131,846 lbs., priced at $34,500, as against totals of 109,894 lbs. and $36,628 for November, 1930.

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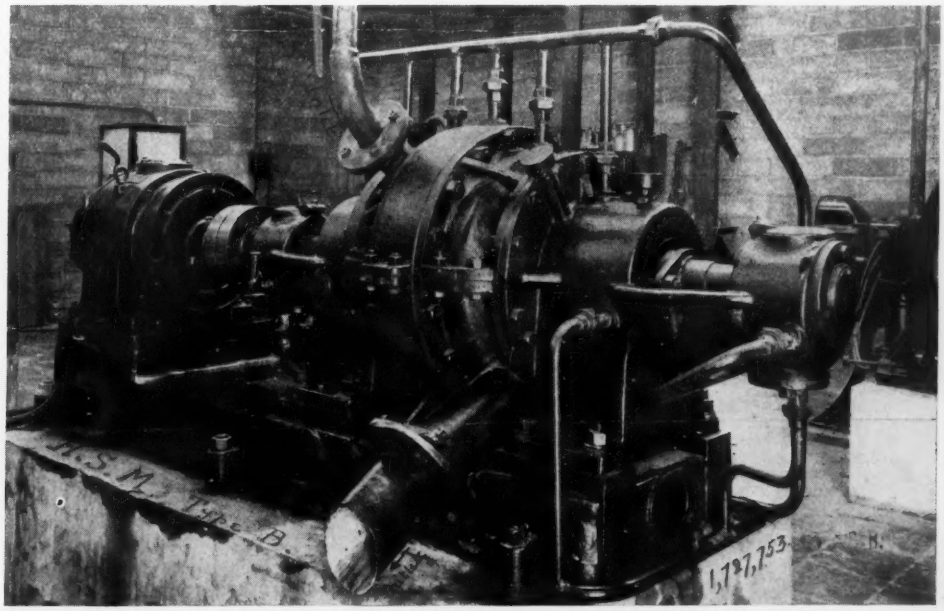
Exports of dental creams from United States had a value of $135,085 during November, 1931.



Equipment designed for manufacture of asphalt emulsions, adapted for a continuous process of soap manufacture.

CHIRIS' ESTATE AT PUBERCLAIRE

Stress has frequently been laid at harvest time, on the unfavorable circumstances against which *Lavender* has to contend when growing in a wild state. We all know, and therefore appreciate the painful labor of the harvester, who has to travel *"over hill and dale"* to cut the scented flowers.

The House of "CHIRIS" has started, over a period of a number of years extensive Lavender Plantations with the object in view of surrounding the plant with all necessary attention and, if possible, reducing the cost-price of the oil; to prevent the alternation of good and bad harvests, and finally to foster the multiplication of prolific plants of good quality.

Above is pictured the three hundred acre "CHIRIS" *Lavender Estate* at *Puberclaire*. Lavender Estates and production units are also maintained at *La Roque-Esclapon*, and *Barreme*. As important producers of LAVENDER OIL, the House of "CHIRIS" has set standards in quality which are second to none.

We solicit your inquiries for our,
OIL LAVENDER FLOWERS
LAVENDER CONCRETE PLANTATIONS

Outstanding *Since 1768*

ANTOINE CHIRIS COMPANY

147-153 Waverly Place New York

Say you saw it in SOAP!

Tables or counters carrying on open display all the brands in stock, outpull the single-brand display table in making self-sales in the average drug store.

Studying Soap Sales In The Drug Store

By WALDON FAWCETT

INSIDE facts of everyday retail merchandising cannot but help be of real practical value to the manufacturers of the products involved. The U. S. Bureau of Foreign and Domestic Commerce is in the midst of an investigation that embraces, among other things, a first-hand study of the distribution of soap via the modern drug store. The fact-gathering for this singularly intimate probe of soap and other retailing is almost finished. It will be many months, however, before the data is translated into detailed reports. A "preview" of some of the more important discoveries with respect to the place occupied by soap in the stocks of chain and independent drug stores, reveals a number of interesting things.

The study of soap retailing is not, of course, a separate, isolated project but is part of the undertaking launched last spring under the title:—The National Retail Drug Store Survey. This appraisal of drug store methods and marketing resources is, in a sense, the sequel or successor of the Government's first exploring expedition—the Louisville Grocery Survey, which likewise turned the official spotlight on soap merchandising. Soap trade may feel that it is a move out of order to begin discussion of the Drug Store Survey before the Department has published the Grocery Survey reports that deal most minutely with soap and soap products. The justification for not waiting the regular turn is that, for two reasons, the Drug Store examination is destined to overshadow even the Louisville study in the eyes of soap sellers.

One reason is that, leaving relative volume of sales aside, soap sales in the drug stores present, for most of those in the soap trade, a more uncertain prospect and a less known quantity than soap marketing in the grocery stores. In the grocery environment, soap is apt to be regarded as a staple and treated as such. In the drug stores, soap has to a great extent the status of a specialty. In many of the price-competitive drug stores, soap and soap products are continually featured as leaders. On top of all of which is the circumstance that drug store operations encompass toilet soaps and toiletries, along with laun-

dry and household soaps, to a degree not equalled in the grocery stores.

The second reason why the soap annex of the Drug Store Survey is destined to steal the show from the earlier and likewise unreported Louisville undertaking is that the drug store analysis far surpasses its predecessor in penetrative power. The grocery store probe was strides ahead of any prior attempt to X-ray retail stock policies and selling practices. But the Drug Store Survey technique is as much ahead of the earlier recipe as that was an advance on the methods of private research agencies. In the drug store investigation, the Commerce directors "planted" Federal field agents as clerks behind the counters and stationed official observers with stop watches to take account of customer-specifications and reactions to selling effort with the result that there is a record of more than 50,000 store transactions as a basis for deductions.

To the same end of more minute vivisection of sales in the drug store project, is the added care exercised in picking stores for type. In the grocery survey, 26 stores were studied, but, in this their initial effort, the investigators from Washington were so anxious to get behind the scenes that they were prone to include any store whose proprietor would promise cooperation in the research. In the Retail Drug Store Survey there are only 14 stores mustered as principal observation stations—all located in or near St. Louis. But in that carefully chosen fourteen are picked examples of every type of urban drug store—the chain unit, the store in the high-rent down-town location, the neighborhood store in a poor neighborhood, in an intermediate zone and in a wealthy district, etc. Likewise do the stores run a wide gamut in inventory and daily turnover.

After all, though, from the standpoint of uncoverage of inside information on the habits and preferences of soap consumers, perhaps the one biggest improvement to be found in the Drug Store Survey is that the study is in terms of individual commodity items. It makes for a valuable gain in perspective that the drug store examination of merchandising flow extends over a full year (April 1, 1931, to March 30, 1932) instead of three months as in the case of the grocery store survey. But it makes yet more for accurate knowledge of "commodity costs" and "customer costs" that all measurement of soap distribution is reduced to specific brand and size. The final statistical and interpretative picture will show the part played by soap in the departmental break-down of the modern complex drug store. But, set over against that, will be the illuminating details of the time spent by clerks in actually selling the different soap products.

IS the Drug Store Survey going to lift the curtain on soap brand preferences and the relative pulling power of the different styles of soap packaging? This is a double question that, in effect, is being asked of Washington by the soap trade who have heard rumors of what is afoot at the St. Louis proving ground. The answer is in the affirmative. Uncle Sam is painstakingly getting the measure of the packaging characteristics of 1,000 different articles handled in the modern drug store—a roster that represents 46 classes of commodities, with soap, soap products, and soap alternatives conspicuous in the line-up. But Uncle Sam will name no names in his reports on brand preferences and his tabulations of consumer—response to color, typography, etc., in package get-up. The facts will be given, as, for example, the facts relative to substitution of goods, but identity of goods will be concealed behind numbers, or alphabetical letters, or other impenetrable disguises.

By the way, it may be whispered in this connection that, in so far as soaps are concerned, the government has found that the bogey of substitution is not nearly as bad as it is painted. Even in the chain stores, it appears that there is little manipulation of brands—say substitution of a private brand for a national brand—although not many of the chain clerks live up fully to the very rigid instructions of the chain managements which have decreed that the customer who specifies a brand must be given that brand. While outright switching is found to be much less prevalent than some soap manufacturers have suspected, the Commerce Department intelligence corps has discovered that there is a tremendous amount of "clerk-persuasian" or "clerk-dictation" in the case of customers who ask for soap of a given class or type, but do not specify make or brand. The Federal experts look upon clerk influence all the more seriously because one of the big surprises of the Drug Store Survey has been afforded by the disclosure of the extent to which brand determination is in the hands of the sales people. In some of the drug stores, it has been revealed that an aggregate of one-half or more of the total sales of soap comprise transactions in which, either the advice of the clerk was asked or the customer accepted the recommendation volunteered by the clerk.

THE jolt administered to the Federal fact-hounds by the discovery of the truth regarding brand substitution has been matched by one other surprise, viz., the shock of finding that the "impulse buying" of soap and similar products in drug stores is not what it is cracked up to be. The Federal specialists are busy now looking for the cause of the less-than-supposed volume of

self-sales. In the meantime, they are faced by the revelation of a startlingly low average of numerical purchases per capita. Apparently, in the light of the mass of evidence, a majority of the people who patronize the up-to-date drug store enter the store with the expectation of purchasing one or two articles and actually depart without any extension of their purchases despite all the silent suggestions of the goods on display.

Because soap makers are among the chief sufferers from the present policies of drug store display, it may be interesting to know that the Federal investigators believe that one of the main causes for the low level of impulse buying is to be found in the deficiencies of the prevailing systems of stock display. In consequence of this conviction, they will, in reporting their findings, address themselves first of all to the subject of "Store Arrangement." Already suggestions have been given privately to the managers of several of the stores where the Government investigators have been stationed, designed to enable them to bring about more effective display of goods such as fine toilet soaps, shampoos, etc., which, by the very dramatic or pictorial quality of their wrappings have display value that merits position on the main line of travel through the store where the attention of shoppers will be caught.

IT may also interest onlookers in the soap industry to learn that the Federal observers are coming out of their drug store experience firmly convinced that in drug stores, no less than in grocery stores, soaps and soap products should be bunched for the highest attainment in sales. By careful check it has been demonstrated that consumer response is most favorable when the customer can walk to a given section of the store and there find on display *all* the brands that are stocked. In one instance, by way of experiment, an "island" table was stocked exclusively with a single best-selling brand whereas another table of the same size was given over to six or eight of the leading brands including the headliner above-mentioned. It fell out that the sales of the favorite on the mixed table ran ahead of the sales at the table where it was on display alone. The theory of the experts on this amazing outcome was that the singleness of appeal at the exclusive table left nothing in reserve if the first bid for conversion failed, whereas at the selective table there was a chance for comparison and an ultimate return to or surrender to the best known candidate.

For products such as soap, the best display location in the modern drug store is not necessarily the most conspicuous site in the store. Common assumption has it that a soap-laden rack or display carton is in the best of luck when it is set near the main door where the majority of the visitors to the store must pass it coming in and going out. The returns, to date, from the Drug Store Survey show that there may be something in this tradition as affects gift packages of soap, novelty packs, such as soap simulations of gold balls, etc., etc., but, for straight "impulse buying," the best display location is the one where the customers tarry the longest.

The vicinity of the cashier's desk has much to recommend it. A site adjacent to the soda fountain is equally favorable for silent missionary work on behalf of an ingratiating soap item, but best of all places for self-starting sales of standard soap items, is the neighborhood of the prescription counter where customers have time to kill while waiting for medicines to be made up.

PACKAGING is being studied in connection with the National Retail Drug Store Survey, primarily because the dressing of goods for purposes of exhibition is a merchandising cost, and the Federal surveyors want to ascertain what factors affect this cost. As it is working out, though, the package scruting is not only revealing the package susceptibilities of average consumers, but it is going to treat soap men to a vivid lesson on the force of example or the power of fashion to influence the styling of packages of all classes of soap, soap powders, flakes and chips, cleansers, etc. Whether the newcomer with a soap product desires to follow the crowd in getting up his package or prefers the strategy of striking contrast, the detailed results of the Drug Store Survey will show him what he must do to turn the trick.

To what an extent packaging taste and packaging principles are being standardized in the soap field is well attested by the study of shaving soap packages. Thirty shaving soaps were selected for the line-up. It was found that out of the thirty packages, seventeen have blue as the base color whereas twenty-one of the thirty have the printings in white, white also leading as the trim color. More than two-thirds of the containers for shaving soap are accounted truly decorative, but only nine designs include a picture. With what unanimity shaving soap marketers are specifying a retail price is indicated by the fact that not one package in three was inscribed with the list price. Furthermore, a yet smaller fraction of these soap items carries any notation of the actual quantity of contents. But there is just as strong a trend in the opposite direction when it comes to playing up the soap mark on the package, especially where the brand is a coined name. In the case of none of the shaving soaps studied, does the trade mark ap-

(*Turn to Page* 69)

LIQUID CAUSTIC SODA

DURING the past ten years, liquid caustic soda has grown steadily in favor with soap makers, and in a large number of cases has come to supplant the solid form entirely. There are advantages and disadvantages in the use of caustic soda already in solution when it arrives at the plant. The advantages, however, obviously outweigh the disadvantages to so great an extent that where it has been possible to use the liquid, the switch away from the solid has been quite general. The necessary requirements for using liquid caustic are, of course, a railroad siding at the consuming plant and the necessary handling and storage facilities.

The liquid caustic soda of present day commerce is an aqueous solution containing approximately fifty per cent of actual sodium hydroxide. The liquid form sells at a lower price based on the actual content of caustic soda than the solid, flake, or other dry forms. There are two reasons for this: (1) In manufacture, the evaporation of the caustic soda liquor is not carried to complete dryness, but ends when the solution reaches a concentration of fifty per cent NaOH. This represents a considerable process saving. (2). The cost of packaging of the liquid form is small inasmuch as it is pumped directly to tank cars and does not have to be packed in air-tight metal drums as in the case of solid. These savings in process and packaging costs are passed along to the buyer.

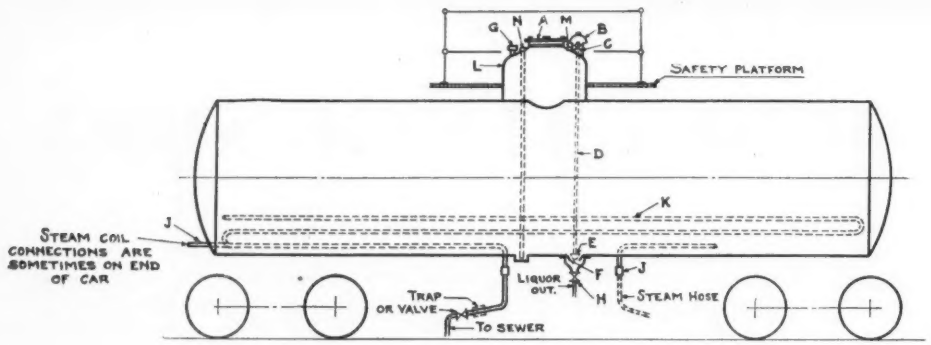
There are disadvantages in the use of liquid caustic soda and these must naturally be considered, especially where the consumption of caustic does not run into a large tonnage. The chief disadvantage of the liquid is the fact that for every ton of caustic soda which is shipped, a ton of water is also shipped. Freight must be paid on the water as well as on the actual caustic soda. Hence, freight costs interfere with the economical use of liquid caustic in some cases. There is also the question of handling and storage equipment. This involves an investment which must be warranted by sufficient consumption before the necessary pumps, piping, tanks, etc., are installed.

Labor for unloading and handling caustic in drums is expensive. With the material on hand in the consuming plant, there is no doubt but that the liquid caustic represents great savings in labor and time. Where the drums have to be broken open and put into solution and prepared to the correct dilution, the liquid form can be prepared for the soap kettle with a minimum of labor by direct dilution with water. There is no problem of disposing of the used drums with all the attendant handling and cluttering up of the plant where floor space is limited.

Freight Rates and Cost

THE case for liquid caustic soda has been presented recently in a booklet by the Columbia Alkali Corporation which discusses the relative merits of the dry and liquid forms of caustic from both the economic and the technical sides. It is pointed out particularly that where a freight rate of about 37c. or less is in effect that there is a saving in favor of liquid as compared with solid, and that a freight rate up to 80c. permits a saving in favor of liquid compared to flake. These rates take into consideration freight costs on tare and the actual NaOH values.

In discussing some of the properties of liquid caustic soda, they state that it averages 50 per cent NaOH, is a clear solution with a specific gravity of 1.50-1.53 and weighs from 12½ to 13 pounds per gallon. It remains liquid at ordinary temperatures. Below 55° F., however, this strong liquor starts to crystallize, so special precautions are taken in the construction of tank cars for shipment, and in equipment for handling, to offset any difficulties which might arise from this condition. Tank cars are of 8,000 or 10,000 gallon capacity and are equipped with heating coils and have every modern convenience to facilitate simple and efficient handling of liquid caustic at the user's plant. Shipments average 25 to 30 tons actual caustic soda. The cold weather behavior of liquid caustic soda is no deterrent to the consumer who contemplates a change from the solid or flake forms. Practically all the large consumers today, most of whom are in that part of the country where severe weather is experienced during the winter, use the liquid form the year around without difficulty. Tank cars and handling equipment have been perfected to the point where cold weather handling is no longer an



A - DOME CAP
B - CAP AND HANDWHEEL FOR INSIDE VALVE
C - GLAND ON VALVE STEM
D - STEM FOR INSIDE PLUG VALVE
E - PLUG
F - SEAT
G - SAFETY VALVE
H - DISCHARGE COCK
J - END CONNECTION FOR STEAM & CONDENSATE
K - STEAM COIL
L - DOME
M - PLUG FOR AIR CONNECTION
N - PLUG FOR TOP OUTLET CONNECTION

TYPICAL TANK CAR

operating problem. It is only necesary that the operators follow carefully certain routine procedures during cold weather months. At other times of the year, the handling of liquid caustic is simplicity itself.

Tanks, Pumps and Valves

THE size and number of storage tanks necessarily is dependent upon the annual consumption of caustic soda, the time in transit of shipments, and the reserve supply required. Storage capacity should be provided for at least two to three weeks' supply, and in no case should a storage tank be less than 12,000 to 15,000 gallons capacity. Storage tanks should be located inside a building wherever possible, and preferably at a point where the year round temperature is above 50° F. The best location is determined by its relationship to the point of consumption, available space and proximity to the siding where tank cars would be spotted. If tanks are located outside, they should be insulated to prevent difficulties in cold weather, but expensive insulation is not necessary or desirable. A two-inch layer of hairfelt, covered with weather paper, is quite satisfactory for this purpose and easily removed to make repairs.

The most satisfactory storage tanks for liquid caustic soda are usually the horizontal, cylindrical type, made of not less than ⅜" boiler plate steel of riveted and welded construction throughout. This should be provided with a man-hole opening on top, an inlet and two outlets. One outlet should be flush with the bottom of the tank, to be used for cleaning purposes, and the other should extend up into the tank three or four inches, to be used for regular supply. Frequently, tanks are already on hand which can be used for liquid caustic storage, but the purchase of second-hand tanks for this purpose is not generally recommended. All outside storage tanks should be provided with a heating coil consisting of at least 50 ft of 2" pipe, as insurance against the possibility of crystallization taking place in cold weather. This heating coil is best located near the outlet of the tank.

All pipe lines, both to and from storage, should be either two-inch or three-inch, and fabricated of wrought iron or double strength steel. Flanged joints are preferable, with which a good grade of rubber gasket should be used. For connecting the tank car to the discharge line, a length of flexible steel hose is recommended. For connecting steam or air lines to the car, rubber hose capable of standing high pressure is suggested. These flexible hose connections obviate the necessity of spotting cars at exact points, and are much easier to work with than permanent connections.

Pipe lines should run inside of buildings wherever possible, and should be so laid that complete drainage can be effected following use. Caustic liquor should never be allowed to remain in pipe lines. Also, such lines should be readily accessible at all times. Where lines are exposed to cold weather, it is preferable to insulate them, although this precaution is not absolutely necessary. It can be avoided if arrangements are made whereby the lines can be warmed by steaming prior to sending liquor through them. This will prevent any crystallization in the lines in cold weather. A good arrangement is to run the steam line and discharge line from tank car to storage side by side, wrapping both in the same insulation, in which case the steam line serves to keep the discharge line warm.

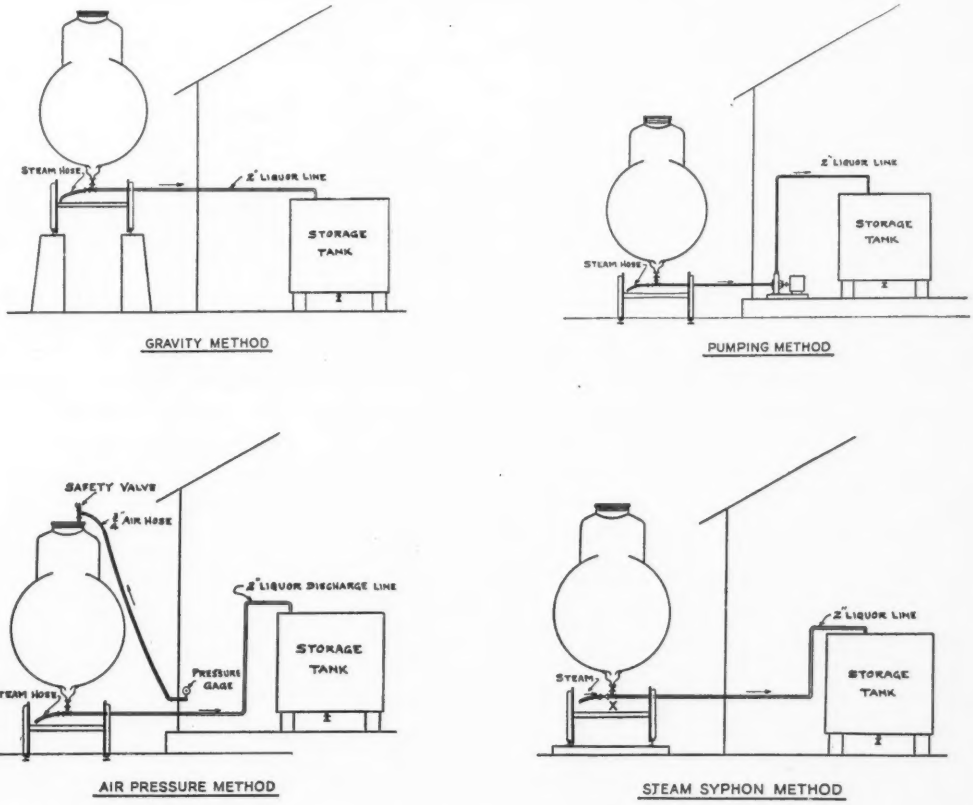
For transferring liquid caustic, both from tank car to storage and from storage to process use, centrifugal pumps are recommended. They should be located inside a building, if possible, or otherwise protected from the cold weather. A two-inch pump will be found entirely satisfactory; and can often be arranged to handle both the unloading and distribution from storage. A centrifugal pump of good cast iron construction of both casing and impellor works very satisfactorily. Asbestos packed cast iron plug cocks are recommended for use in the entire caustic liquor pipe system. Lubricated cocks, with special caustic lubricant now on the market, may be used to advantage, but at a higher initial cost.

Unloading Tank Cars

FIFTY per cent liquid caustic soda is entirely fluid at temperatures above 55° F. Below this temperature, crystals form and deposit in the bottom and around the sides of a tank car. It is absolutely essential that the liquor be in a thoroughly fluid state before sampling or unloading. Hence, during the cold weather months, it is necessary to determine whether or not crystals are present before any move to unload the car is made. This is easily accomplished by removing the dome cover and "feeling" the bottom and sides of the tank with a long rod inserted through the opening. The car can be sampled and unloaded immediately if no crystals are found present as is the case eight months out of the year. If crystals are present, the temperature of the liquor must be raised until they dissolve. This is done by passing steam through coils in the car.

In the severest weather, it is rarely necessary to steam cars longer than five or six hours. Often this can be conveniently done during the night and with exhaust steam, so that the car is ready to unload in the morning. Turn in steam slowly at first, gradually increasing it to full line pressure. If steam is turned on too rapidly, it causes undue strains in coils, and leaks may develop and make trouble. It should take at least fifteen minutes to reach full pressure on the coils and longer in extremely cold weather. While thawing of cars can be readily done with low pressure exhaust steam, the time of thawing can be reduced by use of higher pressures.

When the underside of the tank has become warm at both ends, the liquor is usually ready to unload. This is determined definitely by further



The four usual methods of unloading tank cars of caustic soda liquid and the equipment required

inspection through the dome, and by a check on the temperature of the liquor. If the liquor is not entirely fluid before unloading is started, crystals will be left in the bottom and ends of the tank which will be very difficult to remove. It is advisable to keep steam on the coils during unloading. An exposed discharge line should be warmed by steaming before liquor is unloaded through it. This prevents the liquor from freezing when starting to unload through a cold pipe.

Calculating Solution Mixtures

THE following method and charts are suggested for calculating solution dilutions and solution mixtures to secure a desired quantity of caustic solution of a given concentration:

Example 1. How many gallons of water must be added to 1,000 gallons of NaOH solution of specific gravity 1.508 @ 25° C. to produce a 30% NaOH solution?

(a) Referring to Figure 4, find at 25° C. and 1.508 specific gravity, (Point "a") that the strong liquor contains 48.5% NaOH.

(b) Using Figure 2, lay a straight edge from 48.5% strong liquor to 0% weak liquor, crossing the 30% NaOH line at point "b," which corresponds to 38 units of water, and 62 units of strong liquor, by weight. This gives a ratio of 38/62.

(c) Divide by the corresponding specific gravities, to obtain the ratio of water to strong liquor by volume.

$$\frac{38/1.000}{62/1.508} = \frac{38.00}{41.11} = 0.924$$

(d) 1,000 times this volume ratio indicates 924 gallons of water must be added.

FIG. 2

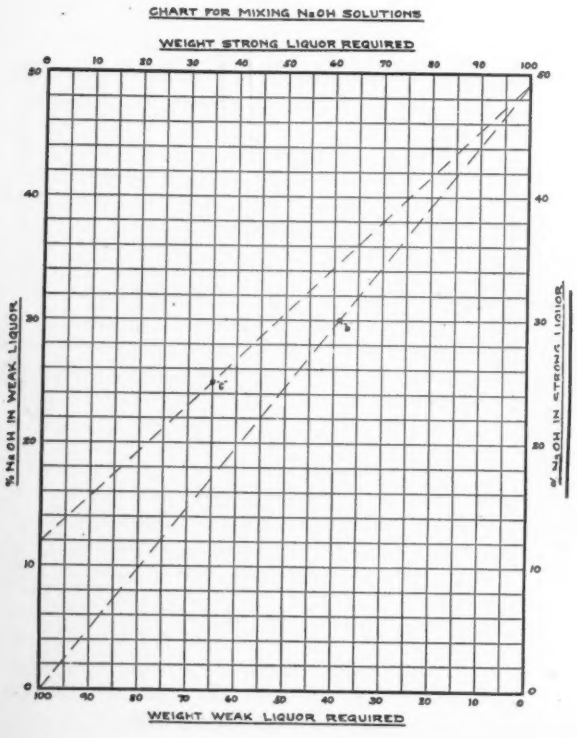
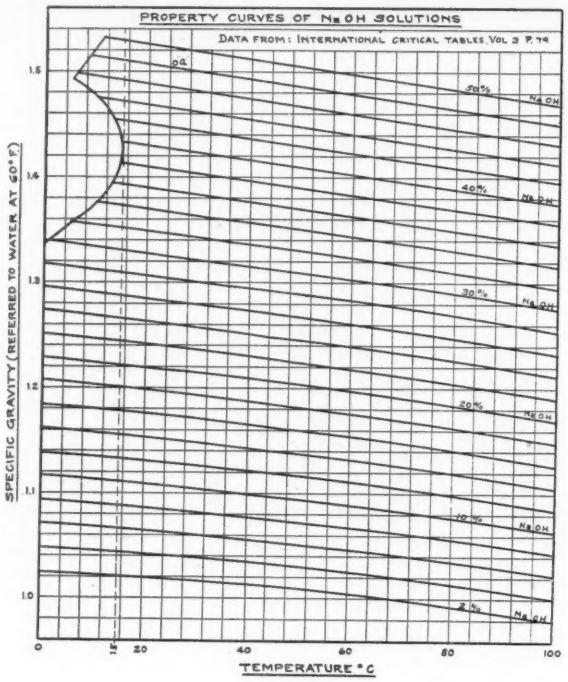


FIG. 4



Example 2. How many gallons of the strong liquor above must be added to 12% weak liquor to produce 1,000 gallons of 25% final liquor, all at 20°C.?

(a) From Figure 4 read the specific gravity of 25% NaOH @ 20° C. as 1.274. Multiply this by the weight of one gallon of water (1.274 × 8.33) to get 10.58, the weight of one gallon of the final liquor; 1,000 gallons weigh 10,580 pounds.

(b) Lay a straight edge from 48.5% strong liquor to 12% weak liquor (Figure 2) crossing the 25% line at "c" which corresponds to 65 units of weak liquor to 35 of strong liquor, by weight.

(c) Multiply 10,580 by 0.65 and by 0.35, respectively;

10,580 × 0.65 = 6.877 lbs. of weak liquor.
10,580 × 0.35 = 3,703 lbs. of strong liquor.

These are the amounts of weak and of strong liquor required to make 1,000 gallons of desired liquor.

(d) Divide each of these weights by the

weight of one gallon of the corresponding liquors to obtain the volumes required:

$$\frac{6{,}877}{1.131 \times 8.33} = 729 \text{ gallons of } 12\% \text{ NaOH}$$

$$\frac{3{,}703}{1.508 \times 8.33} = 295 \text{ gallons of } 48.5\% \text{ NaOH}$$

(NOTE. It will be noted that the sum of the gallons of 12% NaOH and the gallons of 48.5% NaOH required equals 1024 gallons and not 1000 gallons. A contraction of 24 gallons occurs when the two solutions are mixed giving the final volume of 1000 gallons.)

Sampling Correctly

THE proper time to sample a tank car of liquid caustic is just prior to unloading. At this time, the mass is in an entirely fluid state and a representative sample is assured. A "drip" sample is sometimes taken during unloading by tapping the unloading line at some point. The following method is to be preferred:

Lower slowly a seven-foot length of one-half inch nickel pipe, with both ends open, through the dome down to the bottom of the car. Then seal the top either with the thumb or a petcock and withdraw the pipe. Release the liquor in the pipe into a container suspended from the top of the dome on the inside. The sample thus obtained is representative of the contents of the car. The operation is repeated until as large a sample as desired is obtained.

A nickel pipe is suggested because nickel is particularly resistant to attack by caustic soda solutions and hence contamination of the sample is avoided. A glass tube can be used but it is generally considered too fragile for use in this type of work. In all cases, the hands should be protected by the use of rubber gloves and it is well to wear goggles to protect the eyes from any caustic liquor which might spatter during the process of sampling. There can be, of course, modifications of this method but the principle, as outlined above, usually assures a good representative sample.

Method of Analysis

FOR a quick approximate determination of the caustic soda content of a solution, a hydrometer reading suffices. There are a few pre-

(*Turn to Page* 81)

Comparative Values of Caustic Soda Solutions

% NaOH	% Na_2O	Bé	Tw. 60° F.	Sp. Gr. 60° F. @ 60° F.	% NaOH	% Na_2O	Bé	Tw. 60° F.	Sp. Gr. 60° F. @ 60° F.
1	.77	1.6	2.2	1.011	26	20.18	32.4	57.6	1.288
2	1.55	3.1	4.4	1.022	27	20.95	33.4	59.4	1.299
3	2.32	4.6	6.6	1.033	28	21.70	34.3	62.0	1.310
4	3.10	6.3	9.0	1.045	29	22.40	35.2	64.0	1.320
5	3.88	7.7	11.2	1.056	30	23.15	36.1	66.2	1.331
6	4.65	9.1	13.4	1.067	31	24.00	36.9	68.2	1.341
7	5.39	10.5	15.6	1.078	32	24.80	37.8	70.4	1.352
8	6.20	11.9	17.8	1.089	33	25.60	38.6	72.4	1.362
9	6.98	13.2	20.0	1.100	34	26.38	39.4	74.6	1.373
10	7.75	14.5	22.2	1.111	35	27.15	40.2	76.6	1.383
11	8.53	15.8	24.4	1.122	36	27.90	40.9	78.6	1.393
12	9.30	17.1	26.6	1.133	37	28.70	41.7	80.6	1.403
13	10.09	18.3	28.8	1.144	38	29.45	42.4	82.6	1.413
14	10.85	19.5	31.0	1.155	39	30.22	43.1	84.6	1.423
15	11.62	20.7	33.4	1.167	40	31.00	43.8	86.6	1.433
16	12.40	21.9	35.6	1.178	41	31.80	44.5	88.6	1.443
17	13.20	23.1	37.8	1.189	42	32.60	45.2	90.6	1.453
18	13.98	24.2	40.0	1.200	43	33.35	45.9	92.6	1.463
19	14.72	25.2	42.0	1.210	44	34.10	46.5	94.4	1.472
20	15.50	26.3	44.2	1.221	45	34.90	47.1	96.2	1.481
21	16.30	27.4	46.6	1.233	46	35.66	47.8	98.2	1.491
22	17.08	28.5	48.8	1.244	47	36.45	48.4	100.2	1.501
23	17.85	29.5	51.0	1.255	48	37.22	49.0	102.0	1.510
24	18.60	30.5	53.2	1.266	49	37.99	49.6	104.0	1.520
25	19.40	31.5	55.4	1.277	50	38.75	50.2	105.8	1.529

A New German Detergent

THE first of a series of new type detergents for laundry and textile use has been put on the market in Germany by one of the companies of the well-known I. G., frequently referred to during and after the war as the German chemical and dye trust. The fact that the new product is sponsored by the I. G. lends considerable weight to the claims which have been made for it in Germany. A report from W. L. Lowrie, American Consul General in Berlin, regarding the new detergent, gives some of the facts regarding its manufacture, uses, and claims of the manufacturer.

Research has been in progress for some time in the I. G. Laboratories on various substances showing resemblance to soap but not soaps in the chemical sense. Real soaps are defined as alkali salts of higher fatty acids. The value of soap in household and industrial life is enormous, yet its properties leave much to be desired, especially with regard to solubility, behavior in the presence of hard water, and detergent power. While great improvement has been effected in the methods of soap manufacture and various special kinds of soap are produced for toilet, household, medicinal, shop, and industrial uses, the chemical nature of all soaps imposes certain limitations upon their range of uses.

Certain substances have been observed to behave like soap in many respects. Here belong alkylized aromatic sulpho-acids, esters of phosphoric acid with open chain fatty acid radicals. These substances, as well as the better known sulpho-ricinates and sulphonated oleic acid, possess all the typical properties of soap such as reduction of the surface tension of water solutions, lathering, dispersive power, etc., except the cleansing property. To produce the latter feature in such substances was the aim of the I. G. research which has resulted in at least one commercial product marketed in Germany under the trade name of "Igepon A."

The chemical principles involved are summarized as follows: Open chain fatty acid radicals, as contained in natural fats or higher paraffins, are supplied with hydroxyl groups making them water soluble without affecting their aliphatic structure. It is immaterial whether conversion to alcohols is taken as starting point or the open chains are made water soluble by introduction of hydroxyl groups or are sulphonated directly under favorable conditions. Alcohols may be obtained from paraffins by oxidation or from natural fats by reduction, and then be converted into sulphuric acid esters or ethers. The several products obtained by this method possess the cleansing property of soap in various degrees. The choice of one of the aliphatic radicals (unsaturated compounds, substituents) is not of much importance from the chemical standpoint but is, of course, of consequence from commercial standpoint. It is not necessary to eliminate the carboxyl group entirely; it will suffice to suppress it by esterization or conversion to acid-amides.

THE new substances are, as a rule, more soluble than soap, more resistant to the action of chemicals, unaffected by hard water and metal salts, clean and wash better than soap and possess many new technical advantages. Of considerable interest are the properties of "Igepon A" as described in a German pamphlet recently published by the I. G. Farbenindustrie.

The product is colorless, with a faint fatty smell and consistency of soft soap. It is soluble not only in soft water, but in spring or well water of any degree of hardness. In practice, a concentrated solution is made in boiling water with from 5 to 20 per cent of the product (Igepon). This solution will gelatinize in the cold but not to the same extent as similar solutions of soap. It is used to prepare more diluted solutions since 0.1 per cent in water is stated to suffice for all practical purposes. The use of soda to increase the detergent power is not necessary. The product is claimed to be resistant to the salts causing the hardness of water as well as to metal salts in general. This indifference is retained even under a boiling temperature. In soap solutions with hard water, the new products not only prevent the formation of calcium soap flakes but dissolve those already formed, it is stated.

Its use is recommended by the makers for the textile industry where it eliminates the employment of alkalies and saves the cost of purifying the water. Wool washed with the new type detergent does not tend to felting. The yarn is not clogged with soap as occurs sometimes in the

case of wool washed with ordinary soaps when the goods go into an acid dye bath insufficiently rinsed from the preceding washing. It is stated that if goods washed with the German product should undergo such treatment no injurious effect would occur.

The detergent power of the new detergent is stated to be greatly superior to that of soap. It is efficient in cleaning mineral oil spots, and is therefore especially recommended by the I. G. for family washing, especially for fine worsted goods, pure wool woolens and acetate rayon which are so difficult to wash properly with soap. In washing pulled wool, the detergent (Igepon) obviates all special baths, its action being sufficient to do the whole washing in 0.2 to 0.3 per cent solution; in case of extreme contamination with lime, an addition of 2 to 5 cubic centimeters of muriatic acid per liter is recommended. The "Igepon A" is already on the market in Germany. The designation "A" suggests that further products of similar character are in preparation. The new products are expected to fill special requirements in industry and laundry washing, advices state.

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Appoints A. M. T. A. Committees

H. H. Bertram, president of the American Manufacturers of Toilet Articles, has made a series of committee appointments, members to serve until the annual convention. Members of the convention entertainment committee include: Frank J. Lynch, chairman; L. R. Root, Scovill Mfg. Co.; Charles Kelly, Hagerty Bros & Co.; Karl Voss, Karl Voss Corp.; Dr. Wm. T. Haebler, van Ameringen-Haebler, Inc.; Robert Kelly, John Powell & Co., Inc.; Everett W. King, Lorscheider-Schang Co.; A. C. Burgund, Carr-Lowrey Glass Co.; W. C. Young, Swindell Brothers; Louis Spencer Levy, Perfumer Publishing Co.; W. E. Klass, Consolidated Safety Pin Co.; Sewell H. Corkran, A. H. Wirz, Inc.; Fred Lueders, George Lueders & Co.; Frederick J. Pope, Pope Publishing Co.; Walter Murray, Continental Can Co.

Members of other committees include: *Tariff,* Dr. Martin H. Ittner, Colgate-Palmolive-Peet Co.; J. A. Handy, Larkin Co.; *Resolutions,* W. L. Schultz, Lightfoot-Schultz; *Transportation,* J. E. Wilson, Larkin Co., L. D. Snow, Lever Bros. Co.; C. D. Dooley, Colgate-Palmolive-Peet Co., and *Odorgraphia,* A. H. Ingalls, Colgate-Palmolive-Peet Co.

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E. M. Tysdal, St. Louis sales manager for Ungerer & Co., New York, returned to St. Louis early in February after a one week visit to the New York office. He visited Cincinnati, Columbus and Indianapolis, en route.

Magnus Again Heads Trade Group

At the annual meeting of the Drug, Chemical and Allied Trades section of the New York Board of Trade, held in the Drug and Chemical Club, New York, January 19, Percy Magnus, Magnus, Mabee & Reynard, Inc., was re-elected chairman of the section for the coming year. Other officers were re-elected as follows: Vice-chairman, Francis J. McDonough, New York Quinine & Chemical Works; treasurer, S. B. Penick, of S. B. Penick & Co.; secretary, Ray C. Schloterer, Charles A. Prickitt, of the Upjohn Company, former chairman of the section, was elected representative of the section on the board of directors of the New York Board of Trade. New members of the executive committee are Albert A. Teeter, Chas. Pfizer & Co., and Victor E. Williams, Monsanto Chemical Works. In his report on the activities of the section over the past year Mr. Magnus urged that the greatest care be taken in contacts with foreign countries, pointing out that the success of many of the businesses represented in the section depends to a great extent on proper alliances with foreign shippers.

P. C. MAGNUS

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Dr. E. H. Kilheffer has been made manager of the fine chemical division of E. I. du Pont de Nemours & Co. and sales advisor to the organic chemical department. He was president of Newport Chemical Works before it was taken over by du Pont last August. The fine chemicals division has charge of aromatic materials, pharmaceuticals and photographic chemicals. Among the aromatics are the "Scur" products, sold in United States for Societe Chimique des Usines du Rhone-Pouleno, Paris.

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T. G. Cooper, T. G. Cooper & Co., Philadelphia, sailed for Europe on the *S.S. Bremen,* February 3, to confer with foreign associates of his concern relative to expansion of its activities. He will divide his time between England and the Continent, expecting to return in about six weeks' time.

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Edwin L. Strong, one of the founders of Strong, Cobb & Co., Cleveland, died January 10 at the age of seventy-one. His son, T. S. Strong, is the present head of the company, Mr. Strong, Sr., retiring from active participation in the business a number of years ago.

SECURITY PRICES

PRICES of stocks of soap, chemical, insecticide, and allied companies as quoted on the New York Stock Exchange, Curb Exchange, other exchanges and over-the-counter are given in the following table. This table of prices is compiled monthly for *Soap* by a representative of one of the oldest and best-known brokerage houses in New York.

	High 1931-2	Low 1931-2	Jan. 2 1932	Feb. 1 1932
Allied Chem.	182¾	62¼	66	69¼
Am. Agric. of Del.	29¾	5⅛	6	5½
Amer. Cyan. "B".	12¾	2⅝	3	3⅜
Armour of Ill. "A"	4½	¾	1	1¼
Bon Ami "A"....	66¼	48⅛	49	50
Brillo	8½	5⅛	6¾	6⅝
Colgate, P. P. ...	50½	24	27	29¼
Corn Prod.	86⅝	36¼	39⅞	42
Coty	18	2⅞	3	3¼
Dow Chem.	51½	29⅛	31	32
Drug, Inc.	78¾	42¾	50½	52¼
Du Pont	107	47¾	51¼	52¾
Blidden	16⅛	4½	4½	5½
Gold Dust	42⅛	14½	17⅛	16¾
Gulf Oil	76	25⅜	16½	29⅝
Heyden	13	6¼	6¼	6½
Int. Agric.	5¼	1	1¼	1⅛
Lehn & Fink	34¾	18½	20	21¾
Mathieson	31½	12	14½	14¾
McKess. & Rob..	17	3½	4	4⅜
Monsanto	28¾	16¼	21½	22½
Newport "A" ...	55	41	55	55
Proc. & Gamb...	71¼	36⅜	39	39⅞
Shell Union	10¼	2½	3	3½
Sher. Will	68½	33	34½	33½
Sinclair	15⅞	4⅛	4⅝	5⅜
S. O. of Cal.	51¾	22⅝	24⅛	23½
S. O. of Ind.	38½	13½	14⅜	15¼
S. O. of N. J....	52½	25⅜	27	27¼
S. O. of Ohio	62½	23	28	24½
Swift & Co.	30⅜	14⅛	17½	18
Union Carb.	72	27⅛	28⅞	30½
Westvaco	40	7⅝	10⅛	10¾
Wilson & Co.	4	⅝	⅞	⅞

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A. L. van Ameringen, van Ameringen-Haebler, Inc., was re-elected president of the Essential Oil Dealers Association of New York at the annual meeting held at the Hotel Pennsylvania, January 26. Other officers elected include: J. Manheimer, succeeding Charles Fishbeck, Ungerer & Co., as vice-president; and F. W. Stichweh, of James B. Horner, succeeding J. B. Magnus, Magnus, Mabee & Reynard, Inc., as secretary-treasurer.

P & G Six Months Profits Lower

Profits of Procter & Gamble Co. for the second half of 1931 were 24% lower than earnings for the corresponding period of 1930, totaling $9,299,156, or $1.37 a share, as compared with $12,194,732, or $1.83 a common share, during the 2nd half of 1930. Lowered retail prices were responsible for the drop in profits, overbalancing reductions in raw material prices which occurred during the six months period. An even further drop in profits was avoided only by a program of strict economy which included a reduction of approximately $1,500,000 in yearly expenditures on salaries and wages. The Long Beach, Calif., plant began operations in August, this resulting in additional economies in the form of reduced shipping charges to the far western area.

Tonnage was off only about 4% during the half ended December 31, but dollar sales were reduced approximately 20%, due principally to lower prices on bulk goods. It was in the third quarter that the principal reduction occurred, tonnage sales in that period running 6% under 1930 figures. In the fourth quarter an advance over 1930 sales was reported, reducing the decline for the full six months to 4%.

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Brillo 1930 Earnings Higher

The annual report of Brillo Manufacturing Company, Brooklyn, for the year 1931, shows an increase of 53 per cent in net earnings over 1930, and a gain of 33 per cent during the last quarter. Gross sales for 1931 amounted to $1,645,123, compared with $1,655,996, and net earnings, after operating expenses, were $368,267, against $255,578 in 1930. After all charges, there remained a net profit of $279,123, which, after dividends on the Class "A" stock outstanding, was equivalent to approximately $1.40 per share on the 160,000 outstanding shares of no-par common. This compares with $182,711 in 1930, equal, after dividends on Class "A" stock to 78 cents per share on the common. The balance sheet on Dec. 31, 1931, showed total current assets of $683,172, of which $468,742 was in cash and securities. Current liabilities amounted to $113,836. Total surplus increased from $647,521 on Dec. 31, 1930, to $777,451 at the close of 1931.

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Exports of laundry soap from United States during November, 1931, amounted to 1,853,887 lbs., worth $111,461, as against 3,261,799 lbs., priced at $211,090, during November, 1930.

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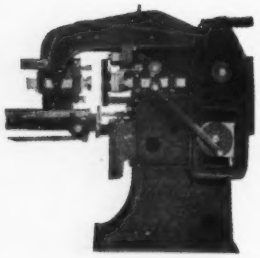
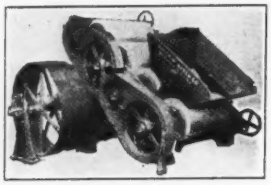
Magnus, Mabee & Reynard, Inc., New York, has issued a price list and catalog of essential oils, aromatics, etc., as of February, 1932.

SOAP MACHINERY

Special Offerings



4 JONES AUTOMATIC combination laundry and toilet soap presses. All complete and in perfect condition.



H-A SOAP MILL

This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls.

DOPP CRUTCHERS

Sizes from 300 pounds to 3,000 pounds. All in best condition and guaranteed.

Quality Used Machinery

You can see NEWMAN equipment in actual operation at our Chicago warehouse.

DRYERS — Two Proctor & Schwartz Large Roll Soap Chip Dryers Complete.
Three Proctor & Schwartz Soap Chip Dryers with five Chilling Rolls. Devine Double Drum Vacuum Dryer.
Proctor & Schwartz Bar Soap Dryers.
Condon & Huber Soap Chip Dryers.

SOAP CRUTCHERS — Houchin-Aiken, Dopp & Doll Steam Jacketed Crutchers, 1000 lb., 1200 lb., 1350 lb., 1500 lb., 1800 lb., 3000 lb., 6000 lb. and 10,000 lb.

SOAP PRESSES—Jones, Machinery Designing, & Ralston Automatic Presses for toilet and laundry soap. Dopp, Crosby & Empire Foot Presses.
Scouring Soap Presses.

GRINDERS & MIXERS — Day Jacketed Marshmallow Mixers, Pony Mixers, Talcum Powder Mixers, Rouge Mixers, Ointment Mill, etc. Schultz O'Neill Mills.

SOAP CUTTING TABLES—Houchin-Aiken Steel Automatic Table with self-spreader and extra headers.
Wooden Tables with and without self-spreader attachments.

SOAP SLABBERS—Houchin-Aiken, Curtis-Davis, Dopp & Newman's Hand and Power Slabbers.

TOILET SOAP MILLS—2, 3, 4, 5 and 6-roll Granite Soap Mills.
Houchin-Aiken 4 and 5-roll Steel Mills.
Buhler 3, 4, 5-roll Steel Mills.

PLODDERS — Houchin-Aiken, Rutschman & Allbright-Nell 6", 8" and 10" Plodders.

SOAP POWDER MACHINERY —Blanchard No. 10-A and No. 14 Soap Powder Mills.
Broughton Soap Powder Mixers.
Wms. Patent Crusher & Pulverizer.
Sedberry Crusher, Grinder & Pulverizer.
A-N 5x7 Crystallizing Rolls.

FILTER PRESSES—Sperry, Perrin & Shriver Cast Iron Filter Presses 12", 18", 24", 30" and 36". International and Monopod Filters.

VARIOUS OTHER ITEMS—Wm. Garrigue Glycerine Evaporators.
Steel Soap Frames, 600 lb., 1000 lb., 1200 lb., 1500 lb., and 1800 lb. cap.
Automatic Soap Wrapping Machines.
Steel, Copper and Aluminum Kettles.
Soap Remelters, Tube Fillers.
Filling and Weighing Machines.
Pneumatic Scale Corp. Can Filling Machine for cleansers, etc.
Brass Soap Dies for foot and aut. Presses.
Soap Chippers, Scales, Motors, Amalgamators.
Soap Racks, Bottle Filling and Capping Machines. Talcum Can Crimpers, etc.

Send us a list of your surplus equipment—We buy single items or complete plants.

Also makers of a new line of soap machinery. Get our complete list and prices on this new equipment! All used machinery is sold as absolutely guaranteed in first class working condition. Everything listed here is ready for immediate shipment.

NEWMAN TALLOW & SOAP MACHINERY CO.

1051 WEST 35TH STREET
CHICAGO, ILL.

Our Forty Years of Soap Experience can help solve your Soap Problems

Say you saw it in SOAP!

Liquid Caustic Soda Booklet

Columbia Alkali Corporation, New York, has issued a 32 page booklet on the merits and properties of liquid caustic soda, and the correct methods for unloading, handling, storing, sampling, testing, etc. Relative costs, freight rates, and convenience are discussed. Conversion tables, solution dilution and mixing tables, tank and pipe measurement charts, and unloading diagrams are given. Safety measures in handling are covered. Methods of analysis of liquid caustic are also given. Copies of the booklet may be secured from the Columbia Alkali Corp., Empire State Building, New York.

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P. R. Dreyer, Inc., Moves

P. R. Dreyer, Inc., New York essential oil house, has moved to 12 East 12th St. Available space for offices, laboratories and stock in the new location is more than double that previously occupied. The new quarters are located on the top floor of the building and contain over 7,000 square feet of floor space. This move marks the company's tenth anniversary, the firm having been organized by P. R. Dreyer in 1922. Mr. Dreyer is president, F. C. Thiele, vice president, E. R. Vetterlein, treasurer, and Orrin Isbell, secretary. Besides manufacturing a wide variety of perfuming specialties, P. R. Dreyer, Inc., act as representatives for several European producers including Bertrand Freres, Vanillin Fabrik, Paolo Vilardi and H. Raab & Co.

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New York Label & Box Corp., New York, has been appointed sales representatives in New York and the Metropolitan area, New Jersey, and Philadelphia, for the Cincinnati Mailing Device Co. of Cincinnati, manufacturers of fibre cans, tubes, and deodorizing block holders. The New York agents are located at 148 W. 23rd Street.

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The 21st annual meeting of American Drug Manufacturers' Association will be held at Greenbrier, White Sulphur Springs, West Virginia, April 18th and 19th. Meetings of the scientific and biological sections will be held on the first day, followed by sessions of the pharmaceutical and crude drug sections on the second day.

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Helena Rubinstein, Inc., New York, cosmetics, has announced a change in merchandising policy for 1932, the new plan entailing re-establishment of the firm's former policy of zoned trade outlets. The 1932 advertising campaign is being handled by Rudolph Moses, Inc., New York.

November Crude Glycerine Imports Lower

Imports of crude gylcerine into United States during November, 1931, dropped off sharply, falling to 518,235 pounds, valued at $22,754, from the October totals of 1,053,544 pounds, worth $50,376. Imports of refined glycerine were substantially higher in November, 390,547 pounds, worth $22,549, an increase from the totals of 83,505 pounds and $6,143 registered in October. The following figures give in pounds the imports of glycerine into the United States over a period of years:

	Refined	Crude
1923	585,792	14,548,660
1924	1,500,644	14,427,054
1925	2,043,606	19,264,654
1926	10,839,093	27,658,552
1927	8,288,574	14,943,670
1928	4,217,943	4,951,651
1929	5,381,684	14,951,901
1930	3,136,809	12,144,193
Jan.-Nov., 1931	1,342,464	9,352,083

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Enoch Morgan Adopts Employee Insurance

Enoch Morgan's Sons Co., New York City, has announced a group life insurance program for its employees which provides for all eligible workers individual protection ranging from $1,000 to $2,500. The insurance program will be administrated by the Metropolitan Life Insurance Company. A total and permanent disability clause in the group contract provides that employees becoming totally and permanently disabled before age 60 will receive the full amount of their insurance, with interest, in monthly installments. The Enoch Morgan's Sons Company will pay the entire cost of the program. Insured employees, when sick or injured and under the care of a physician, are entitled to free visiting nurse service. They will also receive periodically pamphlets on health conservation and disease prevention.

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Henry A. Wiedman, who has been manager of the chemical division of the Schering Corp., New York, for the past three years, will sever his connection with that firm on April 1st. Mr. Wiedman is leaving Schering Corp. because of a reorganization of the company. He has been engaged in the chemical and drug business in New York for the past fifteen years, prior to his Schering connection being associated with E. Fougera & Co. for nine years and with McKesson & Robbins for three years.

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Edwards Beauty Supply Co., has started operations at 783 East 11th Street, Cleveland.

CHICAGO TRADE NOTES

ON January 6th, the Chicago Perfumery, Soap and Extract Association held its first noon luncheon meeting of the new year at the Midland Club. The newly elected President, Donald M. Clark of Franco American Hygienic Company, expressed the wish that the spirit of cooperation among members might be strengthened during the coming months and announced a few tentative plans that the Executive Committee had already formulated. Chief among these was a drive for new members, for the membership total at the close of 1931 was slightly lower than it had been previously. The two annual entertainment features will be maintained, Mr. Clark announced, and an effort will be made to organize the golf tournaments as effectively as last year. Various other activities will take place from time to time in order to bring the members together as frequently as possible. Mr. Clark read, in closing, the following appointments to committees:

Executive Committee: Donald M. Clark, Chairman, of Franco-American Hygienic Co., Louis A. Solo, of Solo Laboratories, William H. Schutte, of P. R. Dreyer, Inc., Harold E. Lancaster, of Marshall Field & Co., and Frank T. Robinson, of Monsanto Chemical Works.

Legislative Committee: Dudley F. Lum, Chairman, of Givaudan-Delawanna, Inc., Louis J. Freundt, of American Can Co., and B. F. Zimmer, of Fritzsche Brothers, Inc.

Membership Committee: Joseph De Lorme, Chairman, of Riviera Products Co., Frank Z. Woods, of Frank Z. Woods Co., Euclid Snow, of Mallinckrodt Chemical Works, Clarence A. Seguin, of C. A. Seguin Co., and R. H. Lingott, of R. H. Lingott Co.

Entertainment Committee: Russell G. Brown, Chairman, of George Silver Import Co., D. A. Day, of Heine & Co., W. K. Teller, of Columbus laboratories, Roy F. Downs, of Owens-Illinois Glass Co., and Chris Christensen, of Chas. Pfizer & Co., Inc.

Bowling Committee: A. F. Andersen, Chairman, of Richard M. Krause, Inc., Paul H. Pettit, of Lady Grey Co., H. Swenneke, of Eureka Paper Box Co., Ray Morris, of Orbis Products Trading Co., and James Stocks, of Franco-American Hygienic Co.

Golf Committee: H. B. Elwell, Chairman, of Pennsylvania Oil Co., G. M. Van Kirk, of Hazel Atlas Glass Co., and Arnold G. Schneider, of Victor Chemical Works.

Publicity Committee: Al J. Dedrick, Chairman, of Albert Verley, Inc., H. H. Sommers, of Chicago Cork Works, Joseph A. Gauer, of Fritzsche Brothers, Inc., Clarence Morgan, of Clarence Morgan & Co., and H. J. Tucker, of American Commercial Alcohol Corp.

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Clarence A. Seguin, who for the past ten years has maintained his offices and perfume materials laboratory at 510 N. Dearborn Street, moved on the first of the year to 1718 N. Damen Avenue, where, in much larger quarters, he will occupy space for his perfume materials and essential oil business in conjunction with that used by the Acme Puff Company, of which he is now president.

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Alec J. Dedrick, for over ten years the Chicago and midwest representative of Edward T. Beiser Co., Riverside, Conn., left that company early in January to become midwest representative for Albert Verley, Inc. In addition to Verley products he will handle those of A. M. Todd Co., of Kalamazoo, Michigan, for whom Albert Verley, Inc., has lately been appointed western sales representative.

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The winners of the first five prizes at the annual bowling tournament of the Perfumers' Association have been announced as follows: First, A. M. Burgh, of Marcelle Laboratories, with 548-2; second, H. Spohr, of A. C. Drury & Co., Inc., with 532-16; third, A. Miller, of Orbis Products Trading Co., with 522-31; fourth H. D. Crooks, of Blocki & Co., with 519-28; fifth, James Stocks, of Franco American Hygienic Co., with 518-18. The joker prize for the lowest score was awarded behind locked doors (to prevent escape) to S. A. De Vries, of van Ameringen-Haebler, Inc., whose score remained undisclosed.

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The injury recently sustained by John Blocki, president for many years of the cosmetic house of John Blocki, Inc., was fortunately not sufficiently serious to keep him long from his duties.

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Demand for automobile polishes in Arabia is increasing and American products lead in sales. Surface protection of automobiles is of great importance in the area, as the humid climate causes rust and destroys the finish of automobiles. Aden is a free port and, therefore, no customs duties are levied on automobile polishes.

—o—

Scouring soaps and powders to the amount of 576,790 lbs., worth $43,143, were exported from United States during November, 1931, as against 809,439 lbs., priced at $54,711, during November, 1930.

Drug Section Dinner March 15

The seventh annual dinner of the Drug, Chemical and Allied Trades will be held this year at the Hotel Commodore, New York, on Tuesday evening, March 15, under the auspices of the Drug, Chemical and Allied Trades Section of the New York Board of Trade. This is the largest dinner of its kind held each year combining all branches of the chemical, essential oil, drug, and allied trades. An attendance of 1,000 is being planned for by the committee which consists of Percy C. Magnus of Magnus, Mabee & Reynard, Chairman; F. J. McDonough, New York Quinine & Chemical Works; S. Barksdale Penick, S. B. Penick & Co.; Charles A. Pickett, The Upjohn Company; S. W. Fraser, Burroughs Wellcome & Co.; A. Bakst, Bakst Brothers; Gustave Bayer, Merck & Co.; C. Leith Speiden, Innis, Speiden & Co.; Albert A. Teeter, Charles Pfizer & Co.; V. E. Williams, Monsanto Chemical Works; and Ray C. Schlotterer, secretary, New York Board of Trade. The reception committee will be headed by B. J. Gogarty of the Rossville Commercial Alcohol Corp. Groups representing the trade of Boston, Chicago, Atlanta, Indianapolis, and Philadelphia will attend. Special tables seating ten or more for party groups can be arranged. Cost will be six dollars per person. Reservations and further details may be secured from Ray C. Schlotterer of the New York Board of Trade, 41 Park Row.

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United States exported 317,508 lbs. of toilet soap, worth $65,185, during November, 1931, as against 449,064 lbs., valued at $96,621, in 1930.

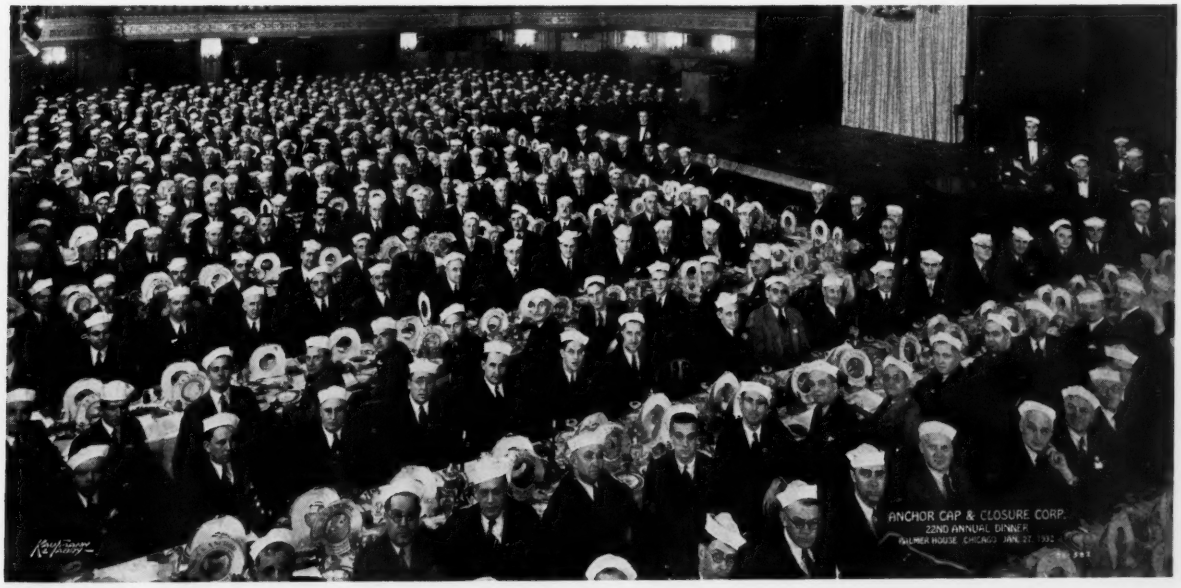
Fights Coconut Oil Tariff

Fighting primarily against a tariff on Philippine coconut oil, J. D. Craig of Spencer Kellogg and Sons of Buffalo, in testifying recently before the House of Representatives insular Affairs Committee in relation to the Hare Bill calling for Philippine independence, stated that Philippine independence would bring no benefit to American agriculture, as has been claimed by alleged "spokesmen" of American agriculture, but would, on the other hand, inflict serious injury to American crushers of copra in the Philippine islands.

Mr. Craig stated that "there would not have been any serious consideration of Philippine independence at this time were it not for the misinformation which has been circulated throughout the United States by Cuban sugar interests and those in alliance with them in regard to the alleged competition of Philippine produce, such as coconut oil, with domestic produced oils and fats." Mr. Craig contended that no such competition exists in fact. He introduced evidence from scientific, governmental and trade sources to prove that coconut oil competes in no important manner with American produced oils and fats, such as lard, butter and cottonseed oil.

Mr. Craig stated that 62% of the importations of coconut oil which come into the United States, go into the manufacture of soap for which use it is indispensable and would be imported for that purpose no matter what duty were levied against it. Another 15%, he stated, goes into fancy biscuits and crackers, in which field it could not be supplanted by any American produced oil or fat.

(*Turn to Page* 81)



The staff of the Anchor Cap and Closure Corp. held its twenty-second annual banquet at the Palmer House, Chicago, January 27, 1932

PERSONAL AND IMPERSONAL

Michael J. O'Hara, soap maker with the Harris Soap Co., Buffalo, N. Y., for the past four years, died Jan. 19, at the home of his daughter, Mercedes P. O'Hara, 63 Hughes Ave., Buffalo. Mr. O'Hara has been a soap maker in the United States for the past forty years, during which time he was connected with a number of well-known American soap companies.

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Albany Soap Corp., Albany, N. Y., has announced the election of the following officers for 1932: Joseph Grober, president and general manager; William C. Schopman, 1st vice-president; Joseph Nicklas, 2nd vice-president; John H. Rea, treasurer; Harry J. Geier, secretary; William H. Geier, assistant general manager.

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Procter & Gamble Co. started a new radio broadcasting program over the network of the Columbia Broadcasting System on Feb. 1. The new program includes "The Gloom Chasers," Col. Lemuel Q. Stoopnagle and Budd, and can be heard every Monday and Wednesday evening from 8:45 to 9:00 P. M. Eastern Time.

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Iowa Milling Co., Cedar Rapids, Iowa, is reported going into the manufacture of liquid and paste soaps, detergents, and cleaning compounds. The company produces feeds and meals, and is also a crusher of soya bean oil.

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William L. Schultz, president of Lightfoot Schultz Co., Hoboken, N. J., has joined the Chemists' Club, New York, as a resident member.

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Samuel Colgate, son of Mr. and Mrs. Russell Colgate, West Orange, N. J., died of pneumonia in Colorado Springs, January 25. Mr. Russell Colgate is chairman of the finance committee of Colgate-Palmolive-Peet Co.

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In the final settlement of the estate of George F. Morgan who died seven years ago the bulk of the fortune of the one time head of Enoch Morgan's Sons Co. goes to his son, John W. Morgan. The appraisal, made public January 28, showed a gross estate of $6,906,724, with a net of $6,511,971. John W. Morgan received $4,160,992 and real estate valued at $270,482, while the widow, Mrs. Helen De Wolfe Morgan, received $2,000,496. Mr. Morgan died February 6, 1925, at the Hotel Martinique, New York, at the age of seventy- nine.

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Empire Chemical Co. has filed articles of incorporation in Green Bay, Wis., stating its purpose to be the manufacture and distribution of soaps, washing powders, etc. F. T. Phillips, J. W. Childs and F. T. Phillips, Jr., are listed as incorporators.

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Lever Bros. Co., plans construction of five oil-storage tanks at its Cambridge plant. Excavation is already under way.

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William Mennen, president of Mennen Co., Newark, recently made a second donation of $25,000 to Cornell University, Ithaca, N. Y., to complete plans for the construction of a dormitory group.

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Paul O. Richmond, vice-president of R. L. Watkins Co., Cleveland, died of pneumonia in a Cleveland hospital, January 17, at the age of forty-seven.

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Charles S. Dewey has been elected a vice-president of Colgate-Palmolive-Peet Co. and a member of the board of directors. Mr. Dewey, formerly financial adviser to Poland and previously Assistant-Secretary of the United States Treasury, will be in charge of finance and will assist in the foreign business of Colgate-Palmolive-Peet Company.

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Carman Roberts Co., Pittsburgh, a subsidiary of Carman & Co., New York, is extending its activities into the janitor supply trade. The firm has been active for some years in the wholesale laundry and cleaning supply business.

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Lever Bros. Co. has leased a half floor in the Nelson Tower building, 450 7th Avenue, New York, where its New York branch sales offices will be located. Offices have previously been maintained at 370 7th Avenue.

The sale of "Fracy" soap has been taken over by Bonded Products Corp., L. I. City, N. Y.

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Colgate-Palmolive-Peet Co. announces the appointment of Frank Head to take charge of promotion and sales of its "Seventeen" line. Mr. Head was formerly with Owl Drug Co.

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Iowa Soda Products Co., Council Bluffs, Iowa, whose plant was destroyed by fire recently, plans to rebuild early this spring. Meanwhile operations are being conducted in its warehouse which was undamaged.

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Leon Danco, formerly vice-president of McKesson & Robbins, Inc., in charge of production of shaving cream, toothpaste and other toilet preparations recently resigned his position.

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Announcement has been made of the addition of P. E. Norris to the sales staff of Eagle Soap Co.

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Almond W. Barnes, head of A. W. Barnes Soap Co., Brooklyn, died January 7 at the age of eighty-three.

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Ritz Soap Co., New York, has leased a building at 601 East 14th Street.

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Lord Leverhulme, head of Lever Brothers, Ltd., was installed as president of the British Advertising Association at the annual dinner held recently in London.

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Shampoos imported into United States by C. F. Wunderlich & Co. were held dutiable at 75% as toilet preparations, rather than at 30% as toilet soap in a decision by the U. S. Court of Customs and Patent Appeals, January 25.

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Dr. F. W. Nitardy, vice-president of E. R. Squibb & Sons, presided at a recent dinner at which nine men were honored on their completion of twenty years of service, each, with the company.

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F. M. Jenifer has been appointed general manager and F. T. Winters, assistant general manager, of Pacific Coast Borax Co., New York.

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Colgate-Palmolive-Peet Co. paid a regular quarterly dividend of 62½c. a share on its common stock, January 19, to holders of record January 12.

John J. Black, doing business as Buss-Beach Co., Chippewa Falls, Wis., advertiser-vendor of soaps, washing powder, and other toilet and household articles, has signed a stipulation with the Federal Trade Commission in which he says he has discontinued advertising for agents under former methods, and agrees not to resume these practices. He will also cease representing that he manufactures goods which he does not in fact manufacture, and that he has general distribution centers for the sale of such products, unless such method of distribution actually exists.

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A. Gross & Co., stearic acid and red oil, formerly located at 90 West street, New York, has removed to 122 East 42nd street.

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Vick Chemical Co., maker of "Vick's VapoRub," has been unsuccessful in its attempt to prevent the registration by Maurice E. Cordry of a trademark which includes the word "Vapor" and the instructions "Just Rub It." The opposer held that the mark would cause confusion in the trade, but the United States Court of Customs and Patent Appeals ruled that the disputed words were descriptive rather than coined, and therefore registrable.

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Advertising of "Revelation" tooth powder, a product of August B. Drucker Co., New York, has been turned over to Frank Presbrey Co., New York.

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Dentoza Laboratories, Newburgh, N. Y., makers of dentifrices, have turned over their advertising account to Reimers & Whitehill, Inc., New York.

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Foster D. Snell, Inc., Brooklyn, held their annual dinner of the organization on Jan. 25 at the Hotel St. George, Brooklyn. Twenty-one members of the Snell staff and five guests attended. The principal speakers of the evening were Leon V. Quigley, new public relations counsel for the Snell organization, and Dr. Snell, president.

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Federal Trade Commission has appointed Ishmael Burton as chief examiner to succeed the late Herbert L. Anderson. Mr. Burton has been assistant chief examiner for the past four years. He has been in the Government service since 1908.

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"The Rose in Bulgaria" is the title of a booklet being distributed by George Lueders & Co., New York, American agents for Batzouroff & Co., Bulgarian producer of rose oil.

ON PRODUCTS AND PROCESSES

Determination of wetting power in the laboratory is made by measuring the time required for immersion of the material by carefully placing with tweezers a round piece of the fabric on the surface of the wetting liquid and noting with a stop-watch the time required for complete immersion. The tests are generally carried out at 20 deg. and are repeated ten times and averaged. The concentration component and the pH value of the bath have considerable influence on the results.—*Chim. & Ind.*, 26, 407.

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Production of pure sodium ricinoleate: the solid fatty acids resulting from the saponification of castor oil will precipitate quantitatively from solution in an equal volume of 95% ethyl alcohol on standing four days at —15 deg. This precipitate of saturated acids carries dihydroxystearic acid and stearic acid in an average ratio of two to one and consists of 2.5 to 3% of the total acids. The liquid acids are then transformed into methyl esters and the fraction 188-193 deg. is taken as methyl ricinoleate. On hydrolysis with excess alcoholic potash, ricinoleic acid with a melting point of 5 deg. is obtained. The pure sodium salt is prepared from this acid. A 1% aqueous solution of this salt has a pH of 8.3 to 8.5—*Jour. Amer. Chem. Society*, 53, 4130, 1931.

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Small quantities of metallic salts of weak acids produce a heating effect with red oil which may give rise to spontaneous combustion in textile mills. The addition of 1% of hydroquinone, quinone, thymol, or creosote prevents such heating by negative catalysis. U. S. Pat. 1,791,057. *Ind & Eng. Chem.*, 23, 1304, 1931.

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In the strengthening change during soap boiling, the following operation has been recommended based on the findings of eighty experiments: After the salt wash, the spent lye is withdrawn, water is added to the grained soap and the soap closed. The soap is then boiled four to six hours with open steam, the alkali concentration being kept at 0.4 to 0.5%. The soap is then grained by concentrated lye and again boiled four to six hours and is then allowed to settle.—*Jour. Soc. Chem. Ind. Japan*, 34, Supp. Bndg. 263, 1931.

Various preservatives have been tried for soap. Salicylic acid, sodium salicylate, benzoic acid, and sodium hyposulfite were found not to be practical. Others were tried as follows: anhydrous sodium sulfite, 2%; borax crystals, 3%; sodium thiosulfate crystals, 3.3%; sodium benzoate, 2.5%. Soaps with sodium sulfite do not discolor when exposed 25 hours to a quartz lamp, but darken quickly in the presence of copper. The soap with borax withstood 5 to 6 hours exposure to the lamp, and showed a good resistance to copper. Thiosulfate soaps show an initial grayish-green color which grows less on standing. It withstood the lamp ray for six hours, but in the presence of copper may develop black spot of copper sulfide. The preference seems to be given to sodium sulfite.—*Seifensieder Ztg.*, 58, 615, 1931.

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A soap paste with disinfectant and germicide properties is made with potassium hypochlorite or sodium hypochlorite, a soap, glycerol, soda lye, sawdust, and a mineral powder.—French Patent No. 706,502.

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Translucent soap flakes are prepared by incorporating a per-salt such as sodium perborate in a mixture of sodium and potassium soaps, and the mixture is formed into flakes.—U. S. Patent No. 1,824,809.

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Fatty acid derivatives as wetting agents: Products such as alkylated sulfated derivatives, an alkylating or arylating agent such as ethyl sulfate or benzyl chloride, is brought to react with the sodium salt of sulfated oleic or ricoleic acids or other water soluble salt of the sulfuric acid ester of a higher alphatic acid containing at least eight carbon atoms.—U. S. Patent No. 1,822,977. (See also No. 1,822,978 and 1,822,979.)

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Glycerine is refined by treating the glycerine liquor with 5 to 15% hydrated lime and separating the precipitate thus formed. The liquor is then treated with zeolite and concentrated.—U. S. Patent No. 1,824,507.

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High and low prices of fats, oils, tallow and grease from 1921 to 1931 are recorded in a booklet just issued by Davidson Commission Co., Chicago.

RECORD OF TRADE-MARKS

The following trade-marks were published in the January issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

Olo—This in outlined letters, vertically and horizontally on cross-shaped background, describing soap and cleaning compound. Filed by Beaver Chem. Works, Beaver Dam, Wis., Feb. 14, 1930. Claims use since May 1, 1928.

Sportsman—This in solid letters describing saddle soap. Filed by Gemsco, Inc., New York, July 21, 1931. Claims use since March, 1929.

F. & P.—This on reverse plate together with word "Certified" describing cleansing compounds. Filed by F. & P. Chemical Corp., New York, Aug. 31, 1931. Claims use since May 15, 1928.

"Le Jardin"—This in cross-hatched letters describing soaps. Filed by D'Orsay Perfumeries Corp., New York, Oct. 21, 1931. Claims use since Sept. 1, 1931.

Lasco—This in solid letters describing soap. Filed by Los Angeles Soap Co., Los Angeles, Nov. 11, 1931. Claims use since January, 1910.

Jabon de Reuter—This on wrapper describing soaps. Filed by Lanman & Kemp-Barclay & Co., New York, Nov. 17, 1931. Claims use since 1894.

Ace—This in shaded letters with illustration showing insects being sprayed by man in aeroplane, describing insecticide. Filed by Ace Mfg. Co., Laredo, Tex., Sept. 8, 1931. Claims use since Apr. 1, 1931.

Lix—This in reverse on package wrapper describing insecticide. Filed by Central City Chemical Co., Chicago, Oct. 21, 1931. Claims use since Feb. 28, 1931.

Zinfandelite—This in solid letters describing insecticides and germicides. Filed by California Spray-Chemical Corp., Berkeley, Cal., Nov. 10, 1931. Claims use since Jan. 26, 1931.

Tendust—This in solid letters describing insecticides and germicides. Filed by California Spray-Chemical Corp., Berkeley, Cal., Nov. 23, 1931. Claims use since Feb. 5, 1931.

X * Pep—This in solid letters describing insecticides. Filed by Shane Chemical Co., Brooklyn, Nov. 24, 1931. Claims use since August, 1931.

Pyrum—This in solid letters describing insecticides and germicides. Filed by California Spray-Chemical Corp., Berkeley, Cal., Nov. 23, 1931. Claims use since Mar. 24, 1931.

Serv-O-Soap—This in solid letters describing liquid soap dispenser. Filed by Hillyard Chem. Co., St. Joseph, Mo., Nov. 6, 1931. Claims use since Oct. 1, 1931.

Bon Ami de Luxe—This in solid letters describing cleaning powder. Filed by Bon Ami Co., New York, July 21, 1931. Claims use since Apr. 3, 1931.

American Girl—This in solid letters describ- soap. Filed by McKesson & Robbins, Inc., Bridgeport, Conn., Aug. 7, 1931. Claims use since Sept. 1, 1929.

American Baby—This in solid letters describing soap. Filed by McKesson & Robbins, Inc., Bridgeport, Conn., Aug. 7, 1931. Claims use since Sept. 1, 1929.

Spedwash—This in shaded letters describing washing powder. Filed by Spedwash Compound Co., Sioux City, Iowa, Aug. 7, 1931. Claims use since July 12, 1929.

Salvarine—This in solid letters on package describing cleaning powder. Filed by Heider Industrial Chemical Co., Columbus, Ohio, Sept. 23, 1931. Claims use since January, 1922.

Angelus—This in solid letters describing soaps. Filed by Los Angeles Soap Co., Los Angeles, Nov. 25, 1931. Claims use since 1908.

Anvil—This in solid letters describing soap. Filed by Los Angeles Soap Co., Los Angeles, Nov. 25, 1931. Claims use since 1901.

Flusul—This in solid letters describing insecticides. Filed by Sherwin-Williams Co., Cleveland, Nov. 20, 1931. Claims use since May 12, 1924.

Qik-So—This in solid letters describing cake cleanser. Filed by Samuel Steiner, New York, Nov. 20, 1931. Claims use since Sept. 25, 1931.

X X X X—This in solid letters describing toilet and laundry soap, chips and flakes. Filed by Van Camp Oil Co., New York, Nov. 23, 1931. Claims use since Nov. 13, 1931.

Scram—This in letters designed to represent insects, describing insecticide. Filed by City Exterminators Co., New York, Nov. 23, 1931. Claims use since Nov. 14, 1931.

Kln-Aid—This in outline letters describing tooth powder. Filed by Kln-Aid Laboratories, El Paso, Texas, Nov. 24, 1931. Claims use since Aug. 16, 1931.

Dominion—This in solid letters describing cleaning compound. Filed by Solvay Process Co., Syracuse, N. Y., May 14, 1931. Claims use since Jan. 1, 1927.

W—This formed in outline by vertical and horizontal lines of varying lengths describing shaving soap. Filed by J. B. Williams Co., Glastonbury, Conn., Nov. 9, 1931. Claims use since Oct. 15, 1931.

Barclay & Co.—This on trade mark seal describing soaps. Filed by Lanman & Kemp-Barclay & Co., New York, Nov. 17, 1931. Claims use since Oct. 7, 1881.

Sol-Sil-Ate—This in solid letters describing detergent compounds. Filed by Alden Speare's Sons Co., Cambridge, Mass., Nov. 27, 1931. Claims use since May 22, 1931.

Contadina—This in solid letters describing toilet and laundry soap, flakes and chips. Filed by Van Camp Oil Co., New York, Nov. 27, 1931. Claims use since Nov. 20, 1931.

Listerine—This in solid letters describing antiseptic and deodorant, Filed by Lambert Pharmacal Co., Wilmington, Dec. 17, 1930. Claims use since May 1, 1881.

K-E—This on oval-shaped reverse plate describing insecticide and exterminator. Filed by Williams Mfg. Co., San Antonio, Texas, Aug. 18, 1931. Claims use since 1925.

Ant Skare—This in hand writing describing ant exterminator. Filled by D. & P. Chemical Co., South Haven, Minn., Nov. 14, 1931. Claims use since Oct. 25, 1931.

Trade Marks Granted

290,090. Water Softener. Suave Co., New York. Filed July 8, 1931. Serial No. 316,734. Published September 29, 1931. Class 6.

290,104. Insect Repellant. Stanco Incorporated, Wilmington, Del. Filed July 20, 1931. Serial No. 317,138. Published September 29, 1931. Class 6.

290,128. Insecticides and Deodorants. Tar Products Corp., Providence, R. I. Filed October 14, 1930. Serial No. 306,753. Published December 2, 1930. Class 6.

290,138. Cleaner or Polish. Pronto, Inc., Ballardvale, Mass. Filed April 6, 1931. Serial No. 312,999. Published October 6, 1931. Class 4.

290,194. Tooth Paste and Powder. Ira J. Shapiro, New York. Filed August 31, 1931. Serial No. 318,600. Published October 6, 1931.

290,216. Water Softener. Los Angeles Soap Co., Los Angeles. Filed July 27, 1931. Serial No. 317,363. Published September 29, 1931.

290,316. Washing Powder and Cleansing Compounds. Modern-Method Laboratories, Cleveland. Filed August 3, 1931. Serial No. 317,597. Published October 27, 1931. Class 4.

290,318. Shaving Cream and Soap. Jaciel Perfumers, Inc., New York. Filed August 5, 1931. Serial No. 317,670. Published October 13, 1931. Class 4.

290,448. Hand Soap, Cleaner and Silver Polish. The National Soap & Polish Co., Cleveland. Filed June 10, 1931. Serial No. 315,643. Published October 13, 1931. Class 4.

290,449. Cleaning Preparation. Clorox Chemical Co., Oakland, Calif. Filed July 6, 1931. Serial No. 316,629. Published October 13, 1931. Class 4.

290,450. Washing Powder. Rumford Chemical Works, Rumford, R. I. Filed June 4, 1931. Serial No. 315,418. Published October 20, 1931. Class 4.

290,460. Polishes. American Polish Co., Chicago. Filed March 23, 1931. Serial No. 312,405. Published July 21, 1931. Class 16.

290,461. Polish. Milrick Products Corp., Kokomo, Ind. Filed January 26, 1931. Serial No. 310,400. Published October 20, 1931. Class 16.

290,469. Soap and Washing Powders. Clover Farm Stores, Cleveland. Filed August 8, 1931. Serial No. 317,800. Published October 20, 1931. Class 4.

290,471. Soap. Walter R. Kirk, Chicago. Filed August 15, 1931. Serial No. 318,009. Published October 20, 1931. Class 4.

290,474. Cleaner. Ray-Glo Chemical Co., Baltimore. Filed August 21, 1931. Serial No. 318,298. Published October 6, 1931. Class 4.

290,476. Shaving Soap and Sticks. Colgate-Palmolive-Peet Co., Chicago. Filed August 24, 1931. Serial No. 318,349. Published October 27, 1931. Class 4.

290,477. Toilet Soap. Colgate-Palmolive-Peet Co., Chicago. Filed August 24, 1931. Serial No. 318,350. Published October 13, 1931. Class 4.

290,639. Soaps and Shaving Creams. Viville (Paris), Inc., New York. Filed September 27, 1930. Serial No. 306,155. Published November 11, 1930. Class 4.

290,641. Insecticide Spray. Orange Manufacturing Co., Orlando, Fla. Filed September 22, 1930. Serial No. 305,952. Published October 27, 1931. Class 6.

290,692. Shampoo. Walter Ferry, New York. Filed August 25, 1931. Serial No. 318,400. Published October 27, 1931. Class 6.

290,693. Disinfectant and Insecticide. Dixie Chemical Co., Cincinnati. Filed August 25, 1931. Serial No. 318,394. Published October 27, 1931.

290,698. Moth Spray and Block. McClellan Products, Ltd., Los Angeles. Filed August 20,

1931. Serial No. 318,247. Published October 27, 1931. Class 6.

290,733. Insecticides. E. L. Bruce Co., Memphis. Filed August 31, 1931. Serial No. 318,583. Published October 27, 1931. Class 6.

290,739. Insecticides. Ambassador Chemical Co., Los Angeles. Filed September 8, 1931. Serial No. 318,830. Published October 20, 1931. Class 6.

290,748. Moth Preventative. Odora Co., New York. Filed July 31, 1931. Serial No. 317,529. Published October 27, 1931. Class 6.

290,754. Dental Cream. Kolynos Co., New Haven. Filed August 11, 1931. Serial No. 317,870. Published October 20, 1931. Class 6.

290,827. Insecticide Cattle Spray. Orange Manufacturing Co., Orlando, Fla. Filed September 24, 1931. Serial No. 319,383. Published November 10, 1931. Class 6.

290,828. Tooth Paste. Sal-O-Dent Laboratories, Inc., San Antonio. Filed September 25, 1931. Serial No. 319,419. Published November 10, 1931. Class 6.

290,851. Liquid Soap. Silk-Eze Corp., Boston. Filed July 7, 1931. Serial No. 316,707. Published November 3, 1931. Class 4.

290,872. Washing Preparation. Joseph Fonte, Cleveland. Filed August 14, 1931. Serial No. 317,977. Published November 10, 1931. Class 4.

290,874. Cleaning Compound. Carteret Chemical Co., Morehead City, N. C. Filed August 18, 1931. Serial No. 318,093. Published November 10, 1931. Class 4.

290,886. Soap. Hilton Hotels Inc., Dallas. Filed September 21, 1931. Serial No. 319,246. Published November 3, 1931. Class 4.

290,887. Shaving Cream. Rit Products Corp., Chicago. Filed September 21, 1931. Serial No. 319,261. Published November 3, 1931. Class 4.

290,898. Cleaning and Polishing Compositions. 2 In 1-Shinola-Bixby Corp., New York. Filed May 21, 1931. Serial No. 314,885. Published November 10, 1931. Class 4.

290,899. Soap. Vincent Fanelli, Phoenix, Ill. Filed May 27, 1931. Serial No. 315,091. Published November 10, 1931. Class 4.

290,905. Soap Substitute. Texto Products Co., Chicago. Filed September 2, 1930. Serial No. 305,251. Published November 3, 1931. Class 4.

291,007. Shaving Cream, Shoe Polish, Washing Compound. Kresge Department Store Corp., Newark, N. J. Filed May 6, 1931. Serial No. 314,243. Published November 17, 1931. Class 4.

291,106. Cleaning Compound. Clinton Chemical Works, Inc., Clinton, Mass. Filed August 28, 1931. Serial No. 318,508. Published November 17, 1931. Class 4.

New Patents

Conducted by
Lancaster, Allwine & Rommel
Registered Attorneys
PATENT AND TRADE-MARK CAUSES
815 15th St., N. W., Washington, D. C.

Complete copies of any patents or trade-mark registrations reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-mark Law will also be freely answered by these attorneys.

No. 1,833,899, Soap, Patented December 1, 1931, by Lester F. Hoyt, East Aurora, N. Y., assignor to Larkin Company, Inc., Buffalo, N. Y. A soap made of fats or oils and a caustic alkali, and having incorporated therein a fatty acid-amine soap.

No. 1,833,900, Process of Making Soap, Patented December 1, 1931, by Lester F. Hoyt, East Aurora, N. Y., assignor to Larkin Co., Inc., Buffalo, New York. A process of making soap, which consists of mixing with the ingredients used in the manufacture of soap, a soap made by the reaction of a hydroxyalkylamine upon a fatty acid to accelerate the saponification of the mixture.

No. 1,835,101, Soap, Patented December 8, 1931, by Paul H. Todd, Kalamazoo, Michigan. A soap composition containing cresol 1% to 15% and mercuric chloride ¼% to 3%.

No. 1,836,400, Manufacture of Soaps, Patented December 15, 1931, by August Ruppert, Frankfort-on-the-Main, Germany, assignor to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. As a new article of manufacture and trade, a soap containing a monoalkylether of the group comprising glycols and polyglycols and a liquid chlorinated hydrocarbon.

No. 1,836,430, Detergent, Cleansing and Polishing Composition, Patented December 15, 1931, by James Baddiley and Ernest Chapman, Blackley, Manchester, England, assignors to British Dyestuffs Corporation Limited, Blackley, Manchester, England. As a new tile cleaning composition for cleansing tiles, walls, stoneware, glass, metals and painted and polished surfaces, comprising a sulphonated alkylated mineral oil fraction and mineral abrasive material.

No. 1,836,665, Metal Cleaning Compound, Patented December 15, 1931, by Grinnell Jones, Cambridge, Mass. A potentially reactive dry

(*Turn to Page* 63)

Say you saw it in SOAP!

CONTRACTS AWARDED

Colgate-Palmolive-Peet Co., Chicago, has been awarded the contract for 8,100 lbs. soap chips for Chicago quartermaster at a price of 5.79c. Swift & Co., Chicago, awarded 2,600 lbs. soap chips at 5.33c. Kleen Rite Mfg. Co., St. Louis, awarded 500 lbs. dry cleaning soap at 13c. John T. Stanley Co., New York, awarded 50 lbs. wet cleaning soap at 7.86c. Sunshine Soda Co., New York awarded 900 lbs. caustic soda at 4c.

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U. S. Sanitary Specialties Corp., Chicago, awarded 250 lbs. soap for Fort Sam Houston laundry department at 10.75c. United Chemical Co., Dallas, Tex., awarded 6,300 lbs. caustic soda at 4.3c. Sunshine Soda Co., New York, awarded 37,520 lbs. laundry soda at 2.5c. Colgate-Palmolive-Peet Co. awarded 22,440 lbs. soap chips at 5.3c. Armour & Co., San Antonio, awarded 900 lbs. dry cleaning soap at 9.78c. and 50 lbs. wet cleaning soap at 9.92c. H. J. Baron Co., El Paso, Texas, awarded 540 lbs. wool soap at 7.125c. San Antonio Paper Co., San Antonio, awarded 1,120 lbs. laundry soda at 2.5c. also 552 lbs. soda ash at 2.58c.

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James Good, Inc., Phila., has been awarded the contract for 3,000 lbs. flake naphthalene at 4.39. for Rock Island Arsenal. Swift & Co., awarded 1,000 lbs. leather equipment soap at 5.94c. E. Myers Lye Co., awarded 5,000 lbs. caustic soda in 1 lb. air tight containers at 6.625c. Mathieson Alkali Works awarded 10,000 lbs. soda ash at 2.63c.

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B. T. Babbitt, Inc., Washington, awarded quantity of caustic soda for Fort Mason quartermaster at 5.9c. James Good, Inc., Phila., awarded quantity of naphthalene at 3.9c. Leeno Products, Inc., Baltimore, awarded quantity of furniture polish at 19c quart. R. M. Hollingshead Co., Camden, N. J., awarded quantity of floor wax at 14.5c.

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Primrose Petroleum Co., Dallas, awarded contract for 7,000 gals. dry cleaning solvent for Fort Sam Houston quartermaster at 7.375c.

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Brillo Mfg. Co., Brooklyn, was low bidder on two gross boxes cleaner for Washington Marine Corps with a quotation of $8.60 gross. Swift & Co., Chicago, was low on 7,500 cans cleaner with a figure of 2.58c. 13 Products Corp. was low bidder on 10,000 lbs. soap powder, quoting 2.75c. Lysander Kemp & Sons Corp., Cambridge, Mass., was low on 2,500 lbs. soap chips with 4.49c. Globe Chemical Co., Cincinnati, was low bidder on 5,000 lbs. laundry soap with a figure of 2.18c.

—o—

Du Bois Soap Co., Cincinnati, was low bidder on a quantity of auto soap in 100-lb. containers in a recent Washington Treasury Supply bidding, entering a quotation of 2.8c. Also low bidder on same product in 250-lb. and 450-lb. containers with quotations of 2.62c. and 2.4c., respectively.

—o—

A new sales policy has been adopted by Colgate-Palmolive-Peet Co. under which any dealer buying $35 worth of its products will get the best prevailing price on this material. Thus small as well as large retailers will be able to compete with each other on even terms. Colgate-Palmolive-Peet salesmen report that the new policy is being well received by retailers and that it is building up much good will for the company.

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Harshaw Chemical Co., Cleveland, has issued a catalog and price list of industrial chemicals which it supplies.

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Chemical Salesmen to Hear Thomas

Ira Vandewater, R. W. Greeff & Co., New York, will be installed as president of the Salesmen's Association of the American Chemical Industry at the first 1932 meeting to be held February 24th, at the Chemists' Club, New York. L. E. Swenson, American Cyanamid Co., newly appointed chairman of the entertainment committee, has announced that Lowell Thomas, well-known traveller and lecturer will address the association. Ralph E. Dorland, Dow Chemical Co., will act as toastmaster, introducing the newly elected officers. These are: President, Ira Vandewater, R. W. Greeff & Co.; first vice-president, R. J. Grant, Noil Chemical & Color; 2nd vice-president, Louis Neuberg, Warner Chemical; 3rd vice-president, W. I. Galliher, Columbia Alkali; secretary-treasurer, Frank Byrne, Monsanto; Members executive committee, L. E. Swenson, American Cyanamid, and B. J. Gogarty, Rossville Commercial Alcohol. Reservations for the dinner may be made through Mr. Swenson.

Market Report on

ESSENTIAL OILS AND AROMATICS

(*As of February* 8, 1932)

NEW YORK—Although there were a number of developments in the essential oil market this period, soap perfuming materials were comparatively quiet. A number of minor price reductions were noted all through the list, but no major developments were reported. The feature of the general market was the sharp rise in price of lemon oil both here and abroad. As yet higher prices have not resulted from the strengthening of the Italian bergamot consortium. Anise and cassia oils have been affected somewhat by the recent serious turn which events have taken in China, but as yet, there has been no advance in quotations.

Oil Anise

Local dealers are viewing with apprehension the possibility of interference with shipments of anise oil which may follow a continuance of the present warlike situation in China. Up to this point no effect of this character has been noted, but the uncertain outlook causes sellers to hold rather firm ideas on the future course of the market. At the moment prices are unchanged.

Oil Bergamot

No higher prices have yet been reported in this market resulting from the firmer situation abroad. Stocks in this market are more than sufficient to take care of present demand and local dealers are skeptical on the predicted higher prices in view of the many similar unfounded predictions which have been made over the past two years.

Oil Cassia

Much the same situation prevailed on this oil as on anise, quotations holding the same, but the market sentiment being distinctly firmer.

Oil Citronella

Spot quotations were unchanged at the close of

this period, but futures were offered at slight concessions.

OIL GERANIUM

Geranium oil prices held steady at the decline of last period.

—o—

The firm of Arthur A. Stilwell & Co., New York, has been purchased by Herbert W. Farrell, formerly with Norda Essential Oil & Chemical Co. Mr. Farrell had been identified with the old essential oil house a number of years ago, and when George Briasco gave up his control of the Stilwell concern Mr. Farrell decided to take over its management.

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Dodge & Olcott Co., New York, has issued its first 1932 price list, which is this year dividend into two sections. Part A for essential oils and synthetic aromatics, and Part B for Perfumers' Materials.

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United States exports of household disinfectant, deodorants, germicides, etc., during November, 1931, totaled 118,056 lbs., worth $14,136, as against 324,066 lbs., valued at 27,915, during November of the previous year.

About the Old Brown Soap Plant

Editor, *Soap:*

Your *Graphic* reprint about the David S. Brown & Co. concern in 1879 in December *Soap* was interesting. That they were the first to make a milled toilet soap in New York is news.

I will never forget them, because starting to work in '82 I got my first order from them. About that time they moved into their new factory, foot of Bank Street, discarded their 200 pound plodders for Rutschman's continuous ones. The first glycerine recovery plant was installed in their new factory while competitors were running their glycerine lye down the sewer.

The *Graphic* story does not tell that the style of the old firm in Peck Slip was David H. Brown & Grandfather and that David S. Brown was Colonel of the 22nd regiment, or that David's Prize Soap was raided by Anthony Comstock. My boss was there when it happened. The dignified but surprised Colonel edged out the back door and over the fence but he had his innings the next day in court when the Judge saluted his friend Col. Brown from the bench. "Them was the happy days."

AMBROSE WELCH.

Newark, N. J.

Market Report on

SOAP AND DISINFECTANT CHEMICALS

(*As of February* 8, 1932)

NEW YORK—The past month was a quiet one in the market for soap and disinfectant chemicals. Sales and shipments showed a seasonal increase on some items, but the improvement in demand was not sufficiently widespread to indicate any substantial strength in the market. The alkali market was quiet on spot, although movements on contract showed a good increase during the first month of the year. Glycerine quotations were lower this period, due to inactivity by buyers. Rosin prices also moved lower in spite of the somewhat better statistical position of the market.

ALKALIS

Alkali users increased their takings during the period just closed, apparently finding it necessary to increase their spot stocks which had been allowed to drop to small proportions over the inventory period. The spot market was quiet, however, with quotations unchanged.

GYLCERINE

Lower prices were recorded on saponification and soaps lye glycerine this period, due to comparative inactivity on the part of buyers. Saponification was reduced to 5½c. lb., inside, with soaps lye offered as low as 4⅝c. lb. Continuance of warm weather throughout the eastern part of United States has retarded sales of glycerine for anti-freeze purposes.

NAVAL STORES

Rosin prices were lower on most items in the list this period in spite of the reduction in stocks and the continuance of heavy shipments in the export trade. The demand from domestic users has been light, this accounting for the price declines which have continued over the past month. The closing schedule this period was as follows: Gum Rosin, Grade B, $3.25; H, $3.90; K, $4.40; N, $5.50; WG, $6.20; WW, $6.25; Wood Rosin, $3.70 to $3.90.

U. S. Bottlers Appoints Sales Agency

A. H. Ross, secretary and sales manager of the U. S. Bottlers Machinery Co., Chicago, has resigned his position as sales manager to head a production engineering and sales company under the name of A. H. Ross & Co. The new organization will act as sales representatives for U. S. equipment and has opened offices in the La Salle-Wacker Bldg., 121 West Wacker Drive, Chicago. The offices occupied by the U. S. Bottlers Machinery Company at 55 West 42nd St., New York, are to be taken over by the sales company.

One of the features to be offered by Mr. Ross' organization is a production engineering service which will give assistance to manufacturers in laying out and equipping new plants or in revising and modernizing existing production lines. Mr. Ross has been associated with the U. S. Bottlers Machinery Co. for nineteen years and is widely known in the field. The entire selling organization which was associated with him in his former position has gone with him under the new plan of operation.

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Swift & Co., Chicago, has been awarded the contract for supplying Veterans' Administration, Washington, with 350 tins of glycerin at $2,117.50.

Daniel N. Calkins, president of the Rochester Germicide Co., Rochester, N. Y., has been elected president of the Rochester Chamber of Commerce. Mr. Calkins is widely known in the disinfectant industry as one of its pioneers, and is one of the oldest members of the Insecticide & Disinfectant Manufacturers Association.

—o—

Robert C. Kelly, vice-president of John Powell & Co., New York, is on an extended trip through Canada in the interests of the company. Mr. Kelly will return to New York about March 1st, by way of Boston in which city he is to address a local group of beauty specialists on the quince seed situation.

—o—

The team representing Colgate-Palmolive-Peet Co. in the Wholesale Drug Trade Bowling Association of New York was tied for first place in the league standing with the Roessler & Hasslacher Chemical Co. team on February 4th, each having sixteen wins and eight losses.

—o—

A limited market for household insecticides exists in Austria. The buying power of the public is unusually low so few persons can afford to buy insecticides. A few insecticides of foreign make are on the market as well as several of domestic production, including "Fuchsol" and "Krepor" both made in Vienna.

Market Report on

TALLOW, GREASES AND OILS

(*As of February* 8, 1932)

NEW YORK—The market for soapmaking fats oils and greases was in much more stable position this period, with advances being shown on a number of items and no important declines reported. Olive oil quotations were substantially higher on spot due to smaller shipments from abroad. Strikes in Spain have made it very difficult to get cargoes loaded. Developments in Manchuria have had the opposite effect on soya bean oil prices which are now fractionally lower. Japanese control of the shipping lines has removed danger from outlaw attacks and has expedited shipments of oil from the interior. Coconut oil and copra are in somewhat firmer position on the coast and in local markets. Tallow, on the other hand, was quoted lower this period, in line with lower prices on grease and oleo stearine.

Coconut Oil

Sellers have succeeded in advancing quotations in the local market fractionally this period, New York tanks now being priced at 3¾c. lb. On the coast copra is moderately higher, quoted at 2c. to 2 1/10c. lb.

Grease

Slackened demand caused an easing off in grease quotations this month, house grease now being offered at 2⅛c. lb.

Olive Oil

Strikes in Spain have seriously interfered with shipments of olive oil to this market with the result that a shortage of stocks here has forced sellers to raise spot quotations to as high as 75c. lb. Futures are quoted at 65c. The Spanish crop has suffered from cold weather, and is expected to be substantially reduced this year.

TALLOW

In a quiet market tallow prices dropped to 2⅞c. lb. for city extra this period. The soap trade has shown little interest in this or other items during the past four weeks.

MISCELLANEOUS

Corn oil declined fractionally this period, now standing at 3¼c. lb. for mill tanks. Cottonseed oil is slightly firmer, crude oil being quoted at 3¼c. lb., inside. Soyabean oil was fractionally lower in local markets, offered at 3¼c. lb. for domestic tanks.

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William Cooper Procter, chairman of the board of Procter & Gamble Co., and Cecil H. Gamble, a director of the company, have been elected members of the board of trustees of the Cincinnati Children's Home.

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Russell Colgate, chairman of the finance committee of Colgate-Palmolive-Peet Co., became a grandfather January 25 when a daughter, Annette, was born to Mr. and Mrs. John K. Colgate of New York.

—o—

Stanley I. Clark, sales manager of Lehn & Fink Inc., will speak February 8 at a luncheon of the Magazine Club of New York in the Hotel Roosevelt. His topic will be "Future Developments in Selling of Advertising."

—o—

Albert Verley, Inc., has been appointed midwest and Pacific coast sales representatives for A. M. Todd Co., Kalamazoo, distillers of peppermint and other domestic essential oils.

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Edmund R. Bower has become associated with John Powell & Co., New York, as sales representative for the Metropolitan area. He was formerly associated with Jerome B. Rice Co., Cambridge, N. Y., seed house.

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New Patents

(*From Page* 49)

composition of matter for detarnishing silver comprising comminuted zinc having a solid acid intimately incorporated therewith.

No. 1,837,976, Rug Cleaning Composition, Patented December 22, 1931, by James B. McComb, Scarsdale, N. Y. A cleaning composition for removing dirt in powdered form from and for restoring the sheen and color of a rug or carpet without removing the latter from the floor and injuring its nap consisting of a body of white neutral soap in the form of coarse granules, granulated borax, trisodium phosphate crystals, sesquicarbonate of soda crystals, powdered ultramarine and cedar oil.

"*Yes, Madam*... this cleaner dissolves quickly and doesn't lump"

T-S-P

Make it easy for your retailers to recommend your cleaners and water softeners. Ship them package goods that flow freely, retain excellent mechanical condition, dissolve readily—the kind that Aero Brand T-S-P always makes.

Aero Brand is carefully cured and properly screened. Our improved manufacturing processes, ample storage and repeated inspections safeguard the quality that builds sales.

We ship promptly by truck, rail or water from Warners, New Jersey, on New York Harbor, in non-sifting, paper lined barrels, kegs, or bags. Ask for samples and prices.

Industrial Chemicals Division

American Cyanamid Company

535 Fifth Avenue New York

Say you saw it in SOAP!

CURRENT PRICE QUOTATIONS

Chemicals

Acetone, C. P., drums.....lb.	.10	.11
Acid, Boric, bbls., 99½%.....ton	135.00	162.50
Cresylic, 97% dk., drums.....gal.	.47	.48
97-99%, pale, drums.....gal.	.54	.58
Formic, 90%, tech.....lb.	.10½	.12
Oxalic, bbls.....lb.	.11	.11¼
Adeps Lanae, hydrous, bbls.....lb.	.14	.15
Anhydrous, bbls.....lb.	.15	.16
Alcohol, Ethyl, U. S. P., bbls.....gal.	2.45	2.59
Complete Denat., No. 5, drums., ex. gal.	.35½	.43½
Alum. potash lump.....lb.	.03	.03¼
Ammonia Water, 26°, drums, wks...lb.	.02½	.02¾
Ammonium Carbonate, tech., bbls...lb.	.10½	.11½
Bleaching Powder, drums .....100 lb.	1.75	2.35
Borax, pd., cryst., bbls., kegs.....ton	66.00	77.50
Carbon Tetrachloride, car lots.....lb.	—	.06¼
L. C. L.....lb.	.06½	.07
Caustic, see Soda Caustic, Potash Caustic		
China Clay, filler.....ton	10.00	25.00
Cresol, U. S. P., drums .....lb.	.10½	.11
Creosote Oil tanks .....gal.	.11½	.12½
Formaldehyde, bbls. .....lb.	.06	.07
Fullers Earth.....ton	15.00	24.00
Glycerine, C. P., drums .....lb.	.11¼	.11¾
Dynamite, drums .....lb.	.09	.09½
Saponification, tanks .....lb.	.05½	.05¾
Soaps, Lye, tanks .....lb.	.04⅝	.04¾
Hexalin, drums .....lb.	—	.40
Kieselguhr, bags .....ton	—	35.00
Lanolin, see Adeps Lanae.		
Lime, live, bbls.....per bbl.	1.70	2.20
Mercury Bichloride, kegs .....lb.	.93	1.08
Naphthalene, ref. flakes, bbls.....lb.	.03¾	.05
Nitrobenzene (Myrbane) drums....lb.	.09½	.11
Paradichlorbenzene, bbls., kegs.....lb.	.15	.23
Paraformaldehyde, kegs .....lb.	.38	.39
Petrolatum, bbls. (as to color).....lb.	.02	.08
Phenol, (Carbolic Acid), drums....lb.	.14¼	.16
Pine Oil, bbls. .....gal.	.61	.66
Potash, Caustic, drums.....lb.	.06⅛	.06⅝
Flake .....lb.	.07	.08
Potassium Bichromate, casks .....lb.	.08¼	.08½
Pumice Stone, powd.....100 lb.	2.50	4.00
Rosins (600 lb. bbls. gross for net)—		
Grade B to H, basis 280 lbs. ....bbl.	3.25	3.90
Grade K to N .....bbl.	4.40	5.50
Grade WG and WW .....bbl.	6.20	6.25
Wood .....bbls.	3.70	3.90
Rotten Stone, pwd. bbls.....lb.	.02½	.04½
Silica, Ref., floated.....ton	18.00	22.00
Soap, Mottled 40 lb. box.....lb.	—	.12
Olive Castile, bars, powder.....lb.	.12	.22
Powdered White, U. S. P.....lb.	.14	.16
Green, U. S. P.....lb.	.06½	.07½
Tallow Chips .....lb.	.07½	.08
Whale Oil, bbls.....lb.	.04	.04½
Soda Ash, contract, wks., bags, bbls. 100 lb.	$1.12½	$1.38
Car lots	—	1.00
Soda Caustic, Cont., wks., sld...100 lb.	—	2.50
Flake .....lb.	—	2.90
Liquid, tanks .....lb.	—	2.15
Soda Sal., bbls.....100 lb.	1.05	1.15
Sodium Chloride (Salt).....ton	11.40	14.00
Sodium Fluoride, bbls.....lb.	.07½	.08½
Sodium Hydrosulphite, bbls.....lb.	.22	.26
Sodium Silicate, 40 deg., drum, 100 lb.	.75	.80
Drums, 60 deg. wks.....100 lb.	—	1.65
In tanks, 15c. less per hundred, wks.		
Tar Acid Oils, 15-25%.....gal.	.24	.28
Trisodium phosphate, bbls. .....lb.	.03	.03½
Zinc Oxide, lead free.....lb.	.06½	.07
Zinc Stearate, bbls.....lb.	.18	.21

Oils—Fats—Greases

Castor, No. 1, bbls.....lb.	.11¼	.11½
No. 3, bbls.....lb.	.10¾	.11
Coconut, tanks, N. Y. .....lb.	.03¾	.03⅞
Tanks, Pacific Coast .....lb.	.03¼	.03⅜
Tanks, Chicago .....lb.	.03⅞	.04
Cod, Newfoundland, bbls. .....gal.	.25	Nom.
Copra, bulk, Coast .....lb.	.02	.0210
Corn, tanks, mills .....lb.	.03¼	.03⅜
Bbls., N. Y. .....lb.	.04⅞	.05
Cottonseed, crude, tanks, mill .....lb.	.03¼	.03⅜
PSY .....lb.	.04	.04¼
Degras, Amer., bbls.....lb.	.03¼	.04
English, bbls. .....lb.	.04¼	.04½
German, bbls. .....lb.	.03½	.03¾
Neutral, bbls. .....lb.	.06¾	.08½
Greases, choice white, bbls., N. Y...lb.	.03	.04
Yellow .....lb.	.02⅛	.02¼
House .....lb.	.02⅛	.02¼
Lard, prime, steam, tierces .....lb.	.05¼	.05½
Compound tierces .....lb.	.06¼	.06½
Lard Oil,		
Extra, bbls. .....lb.	—	.07¾
Extra, No. 1, bbls. .....lb.	—	.07½
No. 2, bbls. .....lb.	—	.07
Linseed, raw, bbls., spot .....lb.	.0660	.0700
Tanks, raw .....lb.	—	.0600
Boiled, 5 bbls. lots .....lb.	—	.0780
Menhaden, Crude, tanks, Balt. ....gal.	—	.15
Oleo Oil, No. 1, bbls., N. Y. .....lb.	—	.07⅛
No. 2, bbls., N. Y. .....lb.	—	.06⅝
Olive, denatured, bbls., N. Y. ....gal.	.75	Nom.
Foots, bbls. N. Y. .....lb.	.04¾	.05
Palm, Lagos, casks, spot .....lb.	.04	.04⅛
Shipments .....lb.	—	.03¾
Niger casks, spot .....lb.	.03¼	.03⅜
Shipments .....lb.	—	.03⅛
Palm Kernel, casks, denatured ....lb.	.05¼	.05½
Tank cars, denatured .....lb.	—	.04¾
Peanut, domestic tanks, N. Y.....lb.	.03¾	.04¼
Red Oil, distilled, bbls. .....lb.	.06⅝	.07⅛
Saponified, bbls. .....lb.	.06⅝	.07⅛
Tanks .....lb.	—	.05¾
Soya Bean, domestic tanks, N. Y...lb.	.03¼	.03½
Manchurian, Coast, tanks .....lb.	.03	.03⅛
Stearic Acid		
Double pressed .....lb.	.07½	.08
Triple pressed, bgs. .....lb.	.10¼	.10¾
Stearine, oleo, bbls. .....lb.	.04¼	.04½
Tallow, special, f. o. b. plant .....lb.	—	.02¾
City, ex. loose, f. o. b. plant .....lb.	.02⅞	.03
Tallow, oils, acidless, tanks, N. Y. ..lb.	—	.06¼
Bbls., c/1, N. Y. .....lb.	—	.06¾
Whale, nat. winter, bbls., N. Y. ..gal.	.53	.55
Blchd., winter, bbls., N. Y. ....gal.	.56	.58
Extra blchd., bbls., N. Y. .....gal.	.59	.61

"*Yes, Madam*... this cleaner dissolves quickly and doesn't lump"

T-S-P

Make it easy for your retailers to recommend your cleaners and water softeners. Ship them package goods that flow freely, retain excellent mechanical condition, dissolve readily—the kind that Aero Brand T-S-P always makes.

Aero Brand is carefully cured and properly screened. Our improved manufacturing processes, ample storage and repeated inspections safeguard the quality that builds sales.

We ship promptly by truck, rail or water from Warners, New Jersey, on New York Harbor, in non-sifting, paper lined barrels, kegs, or bags. Ask for samples and prices.

Industrial Chemicals Division

American Cyanamid Company

535 Fifth Avenue New York

Say you saw it in SOAP!

CURRENT PRICE QUOTATIONS

Chemicals

Acetone, C. P., drums.....lb.	.10	.11
Acid, Boric, bbls., 99½%.....ton	135.00	162.50
Cresylic, 97% dk., drums.....gal.	.47	.48
97-99%, pale, drums.....gal.	.54	.58
Formic, 90%, tech.....lb.	.10½	.12
Oxalic, bbls.....lb.	.11	.11¼
Adeps Lanae, hydrous, bbls.....lb.	.14	.15
Anhydrous, bbls.....lb.	.15	.16
Alcohol, Ethyl, U. S. P., bbls.....gal.	2.45	2.59
Complete Denat., No. 5, drums., ex. gal.	.35½	.43½
Alum. potash lump.....lb.	.03	.03¼
Ammonia Water, 26°, drums, wks...lb.	.02½	.02¾
Ammonium Carbonate, tech., bbls...lb.	.10½	.11½
Bleaching Powder, drums .....100 lb.	1.75	2.35
Borax, pd., cryst., bbls., kegs.....ton	66.00	77.50
Carbon Tetrachloride, car lots.....lb.	—	.06¼
L. C. L.....lb.	.06½	.07
Caustic, see Soda Caustic, Potash Caustic		
China Clay, filler.....ton	10.00	25.00
Cresol, U. S. P., drums .....lb.	.10½	.11
Creosote Oil tanks .....gal.	.11½	.12½
Formaldehyde, bbls. .....lb.	.06	.07
Fullers Earth.....ton	15.00	24.00
Glycerine, C. P., drums .....lb.	.11¼	.11¾
Dynamite, drums .....lb.	.09	.09½
Saponification, tanks .....lb.	.05½	.05¾
Soaps, Lye, tanks .....lb.	.04⅝	.04¾
Hexalin, drums .....lb.	—	.40
Kieselguhr, bags .....ton	—	35.00
Lanolin, see Adeps Lanae.		
Lime, live, bbls.....per bbl.	1.70	2.20
Mercury Bichloride, kegs .....lb.	.93	1.08
Naphthalene, ref. flakes, bbls.....lb.	.03¾	.05
Nitrobenzene (Myrbane) drums....lb.	.09½	.11
Paradichlorbenzene, bbls., kegs.....lb.	.15	.23
Paraformaldehyde, kegs .....lb.	.38	.39
Petrolatum, bbls. (as to color).....lb.	.02	.08
Phenol, (Carbolic Acid), drums....lb.	.14¼	.16
Pine Oil, bbls. .....gal.	.61	.66
Potash, Caustic, drums.....lb.	.06⅛	.06⅝
Flake .....lb.	.07	.08
Potassium Bichromate, casks .....lb.	.08¼	.08½
Pumice Stone, powd.....100 lb.	2.50	4.00
Rosins (600 lb. bbls. gross for net)—		
Grade B to H, basis 280 lbs. ....bbl.	3.25	3.90
Grade K to N .....bbl.	4.40	5.50
Grade WG and WW .....bbl.	6.20	6.25
Wood .....bbls.	3.70	3.90
Rotten Stone, pwd. bbls.....lb.	.02½	.04½
Silica, Ref., floated.....ton	18.00	22.00
Soap, Mottled 40 lb. box.....lb.	—	.12
Olive Castile, bars, powder.....lb.	.12	.22
Powdered White, U. S. P.....lb.	.14	.16
Green, U. S. P.....lb.	.06½	.07½
Tallow Chips .....lb.	.07½	.08
Whale Oil, bbls.....lb.	.04	.04½
Soda Ash, contract, wks., bags, bbls. 100 lb.	$1.12½	$1.38
Car lots .....ton	—	1.00
Soda Caustic, Cont., wks., sld...100 lb.	—	2.50
Flake .....lb.	—	2.90
Liquid, tanks .....lb.	—	2.15
Soda Sal., bbls.....100 lb.	1.05	1.15
Sodium Chloride (Salt).....ton	11.40	14.00
Sodium Fluoride, bbls.....lb.	.07½	.08½
Sodium Hydrosulphite, bbls.....lb.	.22	.26
Sodium Silicate, 40 deg., drum, 100 lb.	.75	.80
Drums, 60 deg. wks.....100 lb.	—	1.65
In tanks, 15c. less per hundred, wks.		
Tar Acid Oils, 15-25%.....gal.	.24	.28
Trisodium phosphate, bbls. .....lb.	.03	.03½
Zinc Oxide, lead free.....lb.	.06½	.07
Zinc Stearate, bbls.....lb.	.18	.21

Oils—Fats—Greases

Castor, No. 1, bbls.....lb.	.11¼	.11½
No. 3, bbls.....lb.	.10¾	.11
Coconut, tanks, N. Y. .....lb.	.03¾	.03⅞
Tanks, Pacific Coast .....lb.	.03¼	.03⅜
Tanks, Chicago .....lb.	.03⅞	.04
Cod, Newfoundland, bbls. .....gal.	.25	Nom.
Copra, bulk, Coast .....lb.	.02	.0210
Corn, tanks, mills .....lb.	.03¼	.03⅜
Bbls., N. Y. .....lb.	.04⅞	.05
Cottonseed, crude, tanks, mill .....lb.	.03¼	.03⅜
PSY .....lb.	.04	.04¼
Degras, Amer., bbls.....lb.	.03¼	.04
English, bbls. .....lb.	.04¼	.04½
German, bbls. .....lb.	.03½	.03¾
Neutral, bbls. .....lb.	.06¾	.08½
Greases, choice white, bbls., N. Y...lb.	.03	.04
Yellow .....lb.	.02⅛	.02¼
House .....lb.	.02⅛	.02¼
Lard, prime, steam, tierces .....lb.	.05¼	.05½
Compound tierces .....lb.	.06¼	.06½
Lard Oil,		
Extra, bbls. .....lb.	—	.07¾
Extra, No. 1, bbls. .....lb.	—	.07½
No. 2, bbls. .....lb.	—	.07
Linseed, raw, bbls., spot .....lb.	.0660	.0700
Tanks, raw .....lb.	—	.0600
Boiled, 5 bbls. lots .....lb.	—	.0780
Menhaden, Crude, tanks, Balt. ....gal.	—	.15
Oleo Oil, No. 1, bbls., N. Y. .....lb.	—	.07⅛
No. 2, bbls., N. Y. .....lb.	—	.06⅝
Olive, denatured, bbls., N. Y. ....gal.	.75	Nom.
Foots, bbls. N. Y. .....lb.	.04¾	.05
Palm, Lagos, casks, spot .....lb.	.04	.04⅛
Shipments .....lb.	—	.03¾
Niger casks, spot .....lb.	.03¼	.03⅜
Shipments .....lb.	—	.03⅛
Palm Kernel, casks, denatured ....lb.	.05¼	.05½
Tank cars, denatured .....lb.	—	.04¾
Peanut, domestic tanks, N. Y.....lb.	.03¾	.04¼
Red Oil, distilled, bbls. .....lb.	.06⅝	.07⅛
Saponified, bbls. .....lb.	.06⅝	.07⅛
Tanks .....lb.	—	.05¾
Soya Bean, domestic tanks, N. Y...lb.	.03¼	.03½
Manchurian, Coast, tanks .....lb.	.03	.03⅛
Stearic Acid		
Double pressed .....lb.	.07½	.08
Triple pressed, bgs. .....lb.	.10¼	.10¾
Stearine, oleo, bbls. .....lb.	.04¼	.04½
Tallow, special, f. o. b. plant .....lb.	—	.02¾
City, ex. loose, f. o. b. plant .....lb.	.02⅞	.03
Tallow, oils, acidless, tanks, N. Y. ..lb.	—	.06¼
Bbls., c/l, N. Y. .....lb.	—	.06¾
Whale, nat. winter, bbls., N. Y. ..gal.	.53	.55
Blchd., winter, bbls., N. Y. ....gal.	.56	.58
Extra blchd., bbls., N. Y. .....gal.	.59	.61

Essential Oils

Almond, Bitter, U. S. P.	lb.	$2.25	$2.50
Bitter, F. F. P. A.	lb	2.50	2.75
Sweet, cans	lb	.40	.43
Apricot, Kernel, cans	lb.	.26	.28
Anise, cans	lb.	—	—
U. S. P., cans	lb.	.39	.41
Bay, tins		1.90	2.00
Bergamot, coppers	lb.	1.85	2.00
Artificial	lb.	1.35	1.50
Birch Tar, rect., bot.	lb.	.45	.50
Crude, tins	lb.	.13	.14
Bois de Rose, Brazilian	lb.	.60	.65
Cayenne	lb.	1.15	1.30
Cade, cans	lb.	.26	.27
Cajuput, native, tins	lb.	.54	.56
Calamus, bot.	lb.	2.75	3.00
Camphor, Sassy, drums	lb.	.21	.23
White, drums	lb.	.16	.18
Cananga, native, tins	lb.	1.75	1.90
Rectified, tins	lb.	2.20	2.30
Caraway Seed	lb.	1.55	1.65
Cassia, Redistilled, U. S. P., cans	lb.	1.05	1.15
Cedar Leaf, tins	lb.	.87	1.00
Cedar Wood, light, drums	lb.	.35	.41
Citronella, Java, drums	lb.	.49	.50
Citronella, Ceylon, drums	lb.	.36	.38
Cloves, U. S. P., cans	lb.	1.15	1.20
Eucalyptus, Austl., U. S. P., cans	lb.	.33	.35
Fennel, U. S. P., tins	lb.	1.00	1.10
Geranium, African, cans	lb.	4.00	4.50
Bourbon, tins	lb.	3.55	4.00
Hemlock, tins	lb.	.90	.95
Lavender, U. S. P., tins	lb.	1.85	3.50
Spike, Spanish, cans	lb.	.55	.75
Lemon, Ital., U. S. P.		1.10	1.40
Lemongrass, native, cans	lb.	.44	.45
Linaloe, Mex., cases	lb.	1.80	1.95
Neroli, Artificial	lb.	10.00	20.00
Nutmeg, U. S. P., tins	lb.	1.20	1.30
Orange, Sweet, W. Ind., tins	lb.	1.35	1.50
Italian cop.	lb	1.60	2.00
Distilled	lb.	.80	.90
Origanum, cans, tech.	lb.	.25	.40
Patchouli	lb.	3.75	5.50
Pennyroyal, dom.	lb.	1.55	1.60
Imported	lb.	1.10	1.15
Peppermint, nat. cases	lb.	1.50	1.70
Redis., U. S. P., cases	lb.	1.65	1.90
Petit Grain, S. A., tins	lb.	1.10	1.20
Pine Needle, Siberian	lb.	.60	.63
Rose, Natural	oz.	8.50	15.00
Artificial	oz.	2.00	2.75
Rosemary, U. S. P., drums	lb.	.39	.43
Tech., lb. tins	lb.	.33	.35
Sandalwood, E. Ind., U. S. P.	lb.	6.50	7.50
Sassafras, U. S. P.	lb.	1.00	1.20
Artificial	lb.	.27	.29
Spearmint, U. S. P.	lb.	1.40	1.55
Thyme, red, U. S. P.	lb.	.50	.65
White, U. S. P.	lb.	.85	.90
Vetivert, Bourbon	lb.	4.50	5.00
Java	lb.	16.00	20.00
Ylang Ylang, Bourbon	lb.	5.15	6.50

Aromatic Chemicals

Acetophenone, C. P.	lb.	$2.00	$3.00
Amyl Cinnamic Aldehyde	lb.	3.50	4.25
Anethol	lb.,	1.20	1.40
Benzaldehyde, tech.	lb.	.60	.65
U. S. P.	lb.	1.20	1.35
Benzyl, Acetate	lb	.65	1.00
Alcohol	lb.	.85	1.40
Citral	lb.	2.10	2.40
Citronellal	lb.	1.75	2.50
Citronellol	lb.	2.50	3.50
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	3.60	4.00
Diphenyl oxide	lb.	1.15	1.25
Eucalyptol, U. S. P.	lb.	.60	.70
Eugenol, U. S. P.	lb.	3.00	4.00
Geraniol, Domestic	lb.	1.45	2.00
Imported	lb.	2.00	3.25
Geranyl Acetate	lb.	2.50	4.00
Heliotropin, dom.	lb.	2.00	2.50
Imported	lb.	2.50	4.00
Hydroxycitronellal	lb.	3.50	9.00
Indol, C. P.	oz.	2.50	5.00
Ionone	lb.	4.00	6.50
Iso-Eugenol	lb.	4.00	5.00
Linalool	lb.	1.95	3.25
Linalyl Acetate	lb.	2.50	3.25
Menthol	lb.	3.35	3.50
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.20	2.60
Paracresol	lb.	4.50	6.00
Salicylate, U. S. P.	lb.	.40	.45
Musk Ambrette	lb.	6.75	7.25
Ketone	lb.	6.00	7.50
Moskene	lb.	5.40	5.90
Xylene	lb.	2.75	3.00
Phenylacetaldehyde	lb.	$5.00	$7.50
Phenylacetic Acid, 1 lb., bot.	lb.	3.00	4.00
Phenylethyl Alcohol, 1 lb. bot.	lb.	4.25	4.50
Rhodinol	lb.	6.00	9.50
Safrol	lb.	.29	.31
Terpineol, C. P., 1,000 lb. drs.	lb.	.28	.30
Cans	lb.	.33	.34
Terpinyl Acetate, 25 lb. cans	lb.	.80	.95
Thymol, U. S. P.	lb.	1.50	1.75
Vanillin, U. S. P.	lb.	4.50	5.75
Yara Yara	lb.	1.60	3.00
Insect powder, bbls.	lb.	.20	.22
Concentrated Extract	gal.	1.50	1.70

Gums—

Arabic, Amb. Sts.	lb.	.06½	.07½
White, powdered	lb.	.12	.15
Karaya, powdered	lb.	.16	.17
Tragacanth, Aleppo, No. 1	lb.	1.05	1.15
Sorts	lb.	.15	.20

Waxes—

Bayberry, bgs.	lb.	.16	.20
Bees, white	lb.	.34	.38
African, bgs.	lb.	.15	.16
Refined, yel.	lb.	.25	.30
Candelilla, bgs.	lb.	.14	.15
Carnauba, No. 1	lb.	.23	.24
No. 2, Yel.	lb.	.22	.23
No. 3, Chalky	lb.	.11	.11½
Japan, cases	lb.	.08¾	.09¼
Paraffin, ref. 125-130	lb.	.03⅜	.04¼

Soap Sales in Drug Stores

(*From Page* 27)

pear less than twice on each package. On nine packages out of the thirty, the trade name has three expressions. And eleven packages, or more than one-third of the total, exemplify "all-faces" soap-mark display, the brand being featured five or more times on each package.

IN line with the package study as an enlightener of soap marketers is the study of the pulling power of soap exhibits in the drug store window. No second-hand or hearsay evidence here. The Department of Commerce has had its own checkers stationed in front of drug store windows from seven o'clock in the morning until midnight, daily, for a week at a stretch. Pedestrians have been classified as to sex, age, etc., and a record was made in every instance as to whether the individual simply passed the store and "shopped" the window, "shopped" the window and entered the store, or entered the store without "shopping" the window. The effect of window publicity for special sales of soap has been studied most closely. And, just here, surprises have appeared. For example, it was found, in one instance, that sales did not increase much while the display was on but that there was a mounting curve of sales for some days after the stunt, evidently due to the slowly maturing demand of persons who saw the transient displays.

While interest in soap circles will be focused on the 14 picked-for-type drug stores that comprise the main laboratory of this study of retailing, it is planned to widen the horizon. An abbreviated diagnosis will be made of three hundred outlying drug stores not so much for the sake of study of sales as to obtain a broad panorama of the wholesale purchasing habits of the drug trade. Finally 5,000 housewives will be quizzed on their preferences and methods of purchase. They will be asked, for example, why they buy laundry soap at the drug store instead of the grocery and why they buy toilet soap at the drug store instead of the department store or toilet goods shop, or beauty shop. The composite answer should show the trends in soap movement as to distributive channels and retail outlets.

—o—

P. Val Kolb, formerly vice-president and general manager of Provident Chemical Works, St. Louis, a subsidiary of Swann Corp., has been elected president of the company, succeeding Sidney H. Thomson who assumes the chairmanship of the board of directors.

Will You Be There?

The Seventh Annual Dinner

of the

DRUG, CHEMICAL and ALLIED TRADES SECTION

NEW YORK BOARD OF TRADE

HOTEL COMMODORE

NEW YORK

MARCH 15, 1932

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Oil & Fat Section

A section of SOAP devoted to oils, fats, waxes, and edible oil products, published prior to Jan. 1, 1932 as a separate magazine under the title, *Oil & Fat Industries.*

Emulsive Capacity of Sulfonated Oils

By RALPH HART*
The Hart Products Corp.

THE emulsive capacity of a sulfonated oil is determined by mixing it with various amounts of olive oil, clearing with oleic acid, and finally testing the stability of the emulsion. The emulsive capacity is useful in formulating commercial products, and serves also as a criterion of quality and as a means of identification.

Judging by the amount of oleic acid required to produce uniform mixtures, sulfonated oils are more miscible with mineral than with fatty oils, and both fatty and mineral oils are less miscible with sulfonated castor than with sulfonated olive oil. Sulfonated oils are better emulsifiers for mineral than for fatty oils; in this respect, acid sulfonated castor oil is inferior to acid sulfonated olive oil. Complete neutralization of a sulfonated oil decreases its miscibility with neutral oils. Completely neutralized sulfonated oil, with the proper addition of alcohol, is a better emulsifier for mineral oils than the acid oil but is a poorer emulsifier for fatty oils.

Sulfonated oils find varied and extensive application in the industries, being used as mordants, dye assistants, detergents, softeners, wetting-out agents, etc. They are particularly useful to the manufacturer of specialty oils for making soluble or emulsifying immiscible liquids, such as fatty oils, mineral oils, and solvents. Many bleach or kier oils on the market are mixtures of sulfonated oil and pine oil or another solvent; wool, silk, and rayon oils are often mixtures of sulfonated oil and mineral, neat's-foot, olive oil, or a similar lubricant. Sulfonated oil also forms the base in the so-called soluble cutting oils for metals, and finally sulfonated cod or other fish oil is used considerably in treating leather.

The emulsifying property of sulfonated oils depends to a great extent upon the nature of the raw oil, method of sulfonation, neutralization of the finished product, moisture content, etc. Geronazzo (2), in discussing leather oils, states that the quality of a sulfonated oil is related directly to the duration of its own emulsion and to its "emulsive capacity"—i.e., the property of retaining a definite quantity of another fatty substance in a homogeneous emulsion. Bumcke (1) concludes that sulfonated oils with the greatest carrying capacity for mineral oils give the best results in practice. In spite of its evident importance there seems to be no detailed procedure in the literature for determining the emulsifying capacity of sulfonated oils; hence the simple method outlined in this paper may be timely. This test is of importance not only in formulating commercial products, but is useful also as a criterion of the quality of the oil and as a means of identification.

A sulfonated-oil mixture to be marketable must be uniform and clear and remain so indefinitely. It has also been found that a clear oil gives a better emulsion than a cloudy product, which may separate on standing. Homogeneity is usually attained by adding oleic acid (red oil) to the mixture (3). An excess of oleic acid, however, must be avoided as it may exert a de-emulsifying effect upon the mixture.

To determine the emulsive capacity, the writer proposes to find the maximum amount of olive oil which, when mixed with 100 grams of the sul-

* Industrial & Eng. Chem., Anal. Edit., Jan. 15, 1932.

fonated oil under examination, gives an emulsion of a definite stability. A mixture of the two oils is usually cloudy but becomes clear upon adding oleic acid. The test consists of two parts: preliminary emulsions, in which the sulfonated oil varies by 10 per cent intervals, and final emulsions, in which the sulfonated oil varies by 1 or 2 per cent of the mixtures.

Preliminary Emulsions

Ten grams of a mixture of the sulfonated oil and olive oil (9 grams and 1 gram, respectively; 8 grams and 2 grams, respectively, etc.) are thoroughly mixed in a 100-cc. glass beaker, using preferably a thermometer as a stirring rod, and titrated at 40° C. with oleic acid until the mixture just turns clear. Next 0.1 cc. of excess oleic acid is added, and a 5 per cent emulsion made, of which 100 cc. are allowed to stand for exactly 2 hours in a 4-ounce oil bottle. The titration with oleic acid is very sharp and sensitive to less than 0.25 per cent of the mixture. A large excess of oleic acid, for reasons already mentioned, must be avoided. After the 2 hours, the emulsions, are closely examined and note made of those showing free oil on the surface. With the preliminary emulsions there is no difficulty in separating the good emulsions from the poor ones, as the change is very marked.

Final Emulsions

Another series of mixtures is now made beginning with the first satisfactory emulsions containing the least amount of sulfonated oil, but instead of 10 grams, a quantity ten times as much is used, or 100 grams. Six mixtures are made, each consecutive one containing 2 grams less of the sulfonated oil. In each case after clearing, 0.5 gram excess of oleic acid is added. Emulsions are made as above, and the first emulsions next to the last one showing free oil is taken as the end point. Of course, the change in the nature of the emulsions is not so pronounced as in the vious emulsions, but nevertheless is quite distinct, and a 4-gram interval of the sulfonated oil at the crucial point makes the change unmistakable. Table I gives the results obtained in testing a sulfonated olive oil which had an emulsive capacity of 108. The olive oil used was the ordinary denatured oil containing 4.2 per cent free fatty acids; the oleic acid was a straw-colored commercial red oil of low chilling point.

Results with Various Oils

The emulsive capacity of some commercial oils employed for different purposes and determined as above are shown in Table II. Samples with low numbers proved, upon further testing, to be either products of poor quality or compounded oils to which a certain amount of fatty or mineral oil had already been added.

Table I. Stability of Emulsions of Mixtures of Sulfonated Olive Oil and Raw Olive Oil

Mixture	Sulfonated Olive Oil *Grams*	Raw Olive Oil *Grams*	Oleic Acid to Clear *Cc.*	Stability of Emulsion
		PRELIMINARY TESTS		
1	10	0	0.0	Good
2	9	1	0.0	Good
3	8	2	0.0	Good
4	7	3	0.6	Good
5	6	4	1.1	Good
6	5	5	1.6	Good
7	4	6	2.0	Very poor
8	3	7	2.6	Very poor
9	2	8	3.4	Very poor
10	1	9	...	.....
		FINAL TESTS		
11	50	50	16.5	Good
12[a]	48	52	17.1	Good
13	46	54	17.8	Poor
14	44	56	18.6	Poor
15	42	58	19.8	Very poor
16	40	60	20.8	Very poor

[a] End point; emulsive capacity = $52/48 \times 100 = 108$.

Table II. Emulsive Capacity of Some Commercial Oils

Sample	Manufacturer's Description	Emulsive Capacity *Grams/100 grams sample*
1 N	Sulf. olive oil	108
2 R	Sulf. olive oil	100
3 L	Sulf. olive oil	85
4 P	Sulf. olive oil	56
5 D	Sulf. castor oil	61
6 P	Sulf. castor oil	61
7 A	Sulf. neat's-foot oil	42
8 L	Sulf. neat's-foot oil	38
9 D	Silk oil	35
10 H	Silk oil	35
11 E	Silk oil	45
12 N	Silk oil	10
13 F	Rayon oil	45
14 N	Leather oil	150

Repeated tests have shown, contrary to the prevailing notion, that mineral oil is more readily emulsified by sulfonated oils than fatty oils, provided the mixture is first made into a clear, uniform oil. Mineral oil is also the more miscible, as shown by the much smaller quantity of oleic acid necessary to clear. This is shown in Table III, in which mixtures of a concentrated sulfonated olive oil (moisture content, 24.3 per cent; free fatty acids, 19.0 per cent; soap, 6.0 per cent) and a light spindle oil (specific gravity, 0.845; viscosity, 80 sec. Saybolt at 37.8° C.) were cleared with red oil.

Judging by the amount of oleic acid necessary to clear a given mixture, sulfonated castor oil is less miscible with mineral or fatty oils than sulfonated olive, or similar oil. In Table IV is listed a series of mixtures of the two sulfonated oils with olive oil, from which will be observed the much greater quantity of oleic acid required to clear mixtures made with the sulfonated castor oil. Where the olive is replaced by mineral oil, the difference is even more marked, since a good

grade of concentrated sulfonated olive oil will mix with mineral oil practically in all proportions without any addition of oleic acid, whereas it is always required in the case of sulfonated castor oil, often to the extent of 25 per cent of the mixture. The difference is still further intensified by completely neutralizing the sulfonated oils. The sulfonated castor oil used in Table IV was of good quality, containing about 25 per cent moisture.

Table III. Oleic Acid Required to Clear Mixtures

(Sulfonated olive and mineral oil; sulfonated olive oil and olive oil)

Mixture	Sulfonated Olive Oil *Parts by wt.*	Mineral or Olive Oil *Parts by wt.*	Emulsions: Mineral oil mixtures	Emulsions: Olive oil mixtures	Oleic Acid to Clear: Mineral oil mixtures % *in cc.*	Oleic Acid to Clear: Olive oil mixtures % *in cc.*
1	100	0	Good	Good	0	0
2	90	10	Good	Good	0	0
3	80	20	Good	Good	0	0
4	70	30	Good	Good	0	6
5	60	40	Good	Good	0	11
6	50	50	Good	Good	0	16
7	40	60	Good	Very poor	2	20
8	30	70	Fair	Very poor	5	26
9	20	80	Poor	Very poor	6	34
10	10	90	None	.....	10	..

Table IV. Miscibility of Sulfonated Castor or Sulfonated Olive with Olive Oil

(Determined by amount of oleic acid required to clear)

Mixture *Parts*	Olive Oil *Parts*	Sulfonated Castor or Olive Oil	Oleic Acid to Clear: Sulf. castor oil mixture %	Oleic Acid to Clear: Sulf. olive oil mixture %
1	0.0	100	0	0
2	10	90	13	0
3	20	80	23	0
4	30	70	28	6
5	40	60	32	11
6	50	50	34	16
7	60	40	38	20
8	70	30	42	26
9	80	20	55	34
10	90	10	..	..

Effect of Alkali and Alcohol

The concentrated sulfonated oils on the market usually contain a small amount of soap but a much greater quantity of free fatty acids. It was found that the completely neutralized oil is somewhat less soluble in mineral oils, but considerably less soluble in olive oil. This is shown, in Table V, by the amount of oleic acid necessary to clear the sulfonated-oil mixtures before and after neutralization. Alcohol (3) added to the neutralized oil reduces the amount of oleic acid by liquefying the soap, but an excess of alcohol has the opposite effect. With mineral oils, there is an advantage in completely neutralizing the sulfonated oil, provided the proper amount of alcohol is also added, but not so with raw olive oil, since the large excess of oleic acid necessary to clear the mixtures, even in the presence of alcohol, renders the oil non-emulsifying.

Table V. Effect of Alkali on the Miscibility of Sulfonated Olive and Raw Olive or Mineral Oil

(Determined by amount of oleic acid to clear)

	Oleic Acid to Clear %
Equal parts acid sulfonated olive and mineral oil	0
Equal parts neutralized sulfonated olive and mineral oil	2
Equal parts acid sulfonated olive and raw olive oil	12
Equal parts neutralized sulfonated olive and raw olive oil	34

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(3) Hart, IND. ENG. CHEM., 21, 85 (1929).

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R. P. Bledsoe of the Georgia State Agricultural Experiment Station has issued a statement on soya beans to the farmers of Georgia warning them against the purchase and planting of northern soya bean seed as producing a crop much inferior to the seed of the Georgia soya bean. He recommends for Georgia the Otootan, Laredo, and Biloxi types.

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The January meeting of the Oil Trades Association of New York, held at the Level Club, New York, was in the form of a beefsteak dinner with all the usual "trimmings." Members and guests gathered early, the facilities of the club being made available to them through the afternoon to insure proper appetities for the dinner served shortly after seven. During and after dinner an extensive floor show was put on. A few hours of entertainment around the circular and rectangular tables rounded out the evening.

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Sixteen mills crushed soybeans in the United States during the fourth quarter of 1931, according to preliminary census figures released by the Department of Commerce. These mills reported a crush of 38,803 tons and a production of 10,655,357 pounds of oil. These figures compare with 21,773 tons of beans crushed and 6,193,747 pounds of oil produced in the corresponding quarter in 1930.

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The Federal Specifications Board, Washington, has revised the Federal Specification for lard substitutes, including vegetable shortening. The revised specification, of record under symbol EE-L-101, supersedes F. S. 603b and becomes effective April 1, 1932.

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National Oil Products Co., Kearney, N. J., paid an extra dividend of $1 a share on common stock, Jan. 2, in addition to the regular semi-annual dividend of $1 a share.

Analysis of Potash Fish Oil Soap Used for Emulsification

By A. W. CRESSMAN, HORACE H. BLISS, AND ARTHUR J. HAAS, JR.*
Bureau of Entomology, Dept. of Agriculture

POTASH fish-oil soap is an emulsifier widely used in the preparation of oil emulsions. Such soaps contain a mixture of saturated and unsaturated acids and free oils, and have varying alkali and water content. The usual method of analysis reports the percentage of fatty anhydride, K_2O, and water. From a standpoint of the effect of the soap on emulsions, the analysis in this form does not give all the desirable information. Numerous workers have shown the effect of the physical characteristics of the emulsion on the quantity of oil adhering following spraying. Several properties of the soap would be expected to influence these qualities. In the course of studies on oil emulsions at New Orleans, La., it became necessary to analyze soaps of this type to evaluate their effect on emulsion characteristics. In this paper a form of analysis modified to report the properties important in emulsification will be suggested.

The most important of these properties of course is the actual soap content, since that is the active emulsifying agent. But on the basis of the theory of molecular orientation at the oil-water interface it is the molar concentration of soap that is significant rather than the fatty anhydride by weight. For example, two lots of soap might show the same percentage by weight, but if one contained a larger quantity of lighter acids, this would have more molecules of soap present to form the interfacial films. The soap content in terms of mols would show this condition, where the fatty anhydride by weight would give no indication.

In aqueous solution the soap will hydrolyze according to the following reaction

$$\text{K soap} + H_2O \rightleftarrows \text{KOH} + \text{fatty acid}$$

An excess of alkali will tend to repress this hydrolysis, leaving more soap molecules available for emulsification. Harkins and Zollman (1) have found the addition of free alkali to yield an emulsion of smaller drop size, and to cause a remarkable decrease in surface tension of soap solutions. Hence the total alkali expressed as mols per gram is another essential point to be determined.

The mean molecular weight gives an index to the length of the hydrocarbon chain. The soaps of the various fatty acids differ in their emulsifying efficiency (2) and so in any work on emulsions it becomes important to have as much information as possible on this point.

DIFFERENT sources of fish oil yield variations in the degree of unsaturation as well as length of the hydrocarbon chain. Since the unsaturated acids are generally more soluble than corresponding saturated compounds, it is usually possible to secure a higher concentration of emulsifier with such acids. The unsaturated compounds are also more effective in lowering the interfacial tension (3) and therefore we would expect them to be more efficient emulsifiers. This conclusion has been experimentally verified. Consequently the iodine number should be included in an analysis to indicate the degree of unsaturation.

The following will illustrate the type of analysis used at this laboratory. The standard A. C. S. methods (4) have been used, adding only the determination of the iodine number to the customary analytical methods. The samples were drawn from a barrel of commercial potash fish-oil soap which had been on hand for several years. About three pints were drawn into a mason fruit jar and sealed with airtight cover. All material for analysis was taken from this jar after thorough agitation. The value given in each case represents a mean of at least four determinations.

Soap content	—0.000841 mols/gram
Total potassium	—0.000970 mols/gram
Excess potassium	—0.000129 mols/gram

This potassium was present as hydroxide and carbonate, but is not reported separately since in aqueous solution the carbonate will be hydrolyzed. Furthermore, variations within wide

* In Jour. Econ. Entomology, Vol. 24, Dec., 1931.

limits of the carbonate-hydroxide ratio do not affect the pH within limits important for emulsifying properties, when the total alkali is held constant. Dilutions .029 N with respect to potassium agreed within 0.1 pH whether the potassium was added in the form of hydroxide or carbonate or as a mixture of the two. Attempts to determine the total alkali by titrating the aqueous solution of the soap with HCl gave uniformly low results. Electrometric titration with the antimony electrode was also tried but proved unsuccessful.

The mean molecular weight can be calculated from the weight of active soap and the molality. The sample in question showed

$$\frac{\text{gram active soap per gram of K. F. O. soap}}{\text{Mols/gram active soap}} = \frac{.2773}{.000841} = 330$$

M. M. w. fatty acid = 330 — 39 (K) + 1 (H) = 292

In determining the degree of unsaturation use was made of the absorption of iodine monobromide at a double bond according to Hanus method (5).

$$\text{I—Br} + \text{—C} = \text{C—} = \text{—C(I)—C(Br)—}$$

The iodine number expresses the number of centigrams of iodine absorbed per gram of soap, this sample giving an iodine number of 142. The mean number of double bonds per molecule of fatty acid can then be calculated by multiplying

$$\text{by the ratio } \frac{\text{mol. wt. soap}}{\text{I} \times 100} = 142 \times \frac{330}{126.9 \times 100}$$

= 3.69 double bonds per molecule of acid.

Summary

QUALITIES of potassium fish-oil soap which are most important from the standpoint of its efficiency in emulsifying oil and water are, molar concentration of soap and total alkali, mean molecular weight, and degree of unsaturation.

An analysis of one lot of soap showed.

Total soap — 0.000841 mols/gram K. F. O. soap.

Total potassium — 0.000970 mols/gram K. F. O. soap.

Total soap by weight — .2773 g/g K. F. O. soap.

Mean molecular weight of acid — 292.

Mean double bonds per molecule — 3.69.

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Packaging Exposition, March 7-12

The Second Packaging, Packing and Shipping Conference, Clinic and Exposition will open at the Palmer House, Chicago, March 7, extending all through that week. One of the principal features of the conference will be a survey and discussion of "The Machine Age and its Relation to Marketing." Among the speakers at various sessions will be: Joseph Hays, Crowell Publishing Company; L. R. Boulware, Syracuse Washing Machine Corporation; John Sullivan, American Management Association; and A. T. Kearny, James O. McKinsey Company. At a dinner on the evening of March 9th the Irwin D. Wolf package competition award and honorary group awards will be announced and the winning package shown. The American Management Association which is staging the exposition, has decided, that the Wolf competition is now open to all packages irrespective of the date they were placed on the market. Originally, a package to be eligible must have been developed and used on or after January 1, 1929.

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A preparation to prevent sheep from being attacked by blowflies and from being restruck, and for killing maggots and healing the wounds, was a four per cent solution of phenol in whale oil with the addition of either 5 per cent carbon tetrachloride or 2 to 4 per cent oil chenopodium as a repellent. Good results were also obtained with a dressing composed of gum arabic 5%; carbon tetrachloride 5%; whale oil 15%; zinc sulfate 5%; water 70%.—*Agric. Gazette of N. S. Wales*, 42,223, 1931; *Chem. Abstr.*, Vol. 26, pg. 246, 1932.

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Stocks of crude cottonseed oil on hand in United States, Dec. 31, 1931, amounted to 126,760,735 pounds, as against 114,498,245 pounds a year before. Refined oil on hand December 31, 1931, totaled 489,866,209 pounds, as compared with 429,575,506 pounds on the same date in 1930.

The Case of Whale Oil Versus Tallow

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PART II.

BETWEEN the years 1924 and 1930, inedible tallow production in the United States increased 15% and reached its highest volume in 1930. Greases, on the other hand, suffered a decline of about 8% so that while of these animal fats, in 1930, for instance, white, yellow and brown greases represented but 30% of the total animal fats (in 1924, 35%), the net result was that in 1930, these greases and inedible tallows supplied but 32% (in 1929 exactly the same percentage) of the fat needs of American soapers as compared with 43½% in 1924 and 42% in 1920. The total quantity of oils and fats (vegetable, animal and fish) available for soap consumption increased more than 44% during this six year period but animal fats recorded but 7% gain. Tallow exports were a factor favoring increased availability as they shrank from 33 million pounds in 1924 to slightly in excess of 5½ million pounds in 1930. (Such exports though were in all probability edible tallow since for the past several years inedible tallow exports have been placed in a miscellaneous classification and not separately identified.) Greases likewise bolstered the net availability of supplies through a drop of 16 million pounds in this span of years. Imports of tallow have dropped sharply in the last few years from about 2½ million pounds in 1924 and an average for the years 1926 to 1929 inclusive of between ten million pounds and 14½ million pounds to a negligible amount in 1930. Thus smaller imports have tended to offset reduced exports of tallow.

Whale oil imports all of which have been destined for the soap kettle have remained practically constant in the relationship they have borne to total available supplies of oils and fats. Whale oil has comprised 5% of the entire quantity of fats employed in soap each year since 1924 except in 1930 when 4½% was so consumed.

Let us consider the status of vegetable oils. Palm oil has aided in supplementing tallow in making good the deficiency in soap fats. Consumption of this oil in 1930 was 2½ times in excess of 1924 thus reflecting an advance in its percentage from 9% to 16% of total available soap oils and fats. Although the use of coconut and palm kernel oils in soaps had increased 70% in 1930 over 1924 and was more than double the quantity for 1920, approximately 4% less oil from these sources entered into soaps in 1930 as compared with 1924. The percentage dropped from 30% in 1920 to 26% in 1924 and then advanced to 31% in 1929 falling 1% in 1930. (See following table.)

Cottonseed oil maintained a stationary percentage of 14% for 1928 to 1930 inclusive which was 2% less than either 1927 or 1926 but 1% greater than 1920. Quantities of cottonseed oil available for consumption have suffered but slight variation since 1926. Fish oils have constituted 3% or 4% each year of the total oils available except in 1928 when 5% was reported.

The data below illustrate the foregoing remarks and the details of the figures discussed.

	% Total Consumption	*Estimated Available for Consumption* (Based on Report of Distribution of Consumption of Bureau of Census, 1929) (In thousand pounds)					
		1924	1926	1927	1928	1929	1930
Whale oil	100	43,419	58,860	60,035	66,209	71,022	61,568
Tallows & greases	88 } 68 }	414,516	420,276	435,079	459,761	445,277	444,203
Palm oil	90	87,196	124,728	122,926	169,933	207.882	221,624
Coconut & palm kernel oils	60	246,077	312,808	336,470	375,547	437,056	419,033
Cottonseed oil	12	127,311	181,948	188,138	180,315	190,326	190,209
Fish oils	51	33,768	36,987	49,866	61,713	57,580	37,541

(*Author's note:* In the absence of a previous determination of consumption by an official government agency, the facts established by the Bureau of Census' initial report in 1929 have been used arbitrarily as the basis of calculating diversion of oils and fats to the soap industry. Although possibly subject to some slight revision, if similar information were available for earlier years, the variation is not believed likely to be of material consequence. "Net available for consumption" for the information of those who might be uncertain as to the exact meaning of the term, is the sum of the stocks on hand at the beginning of the year, the production for the year and any imports, from which total is deducted exports and stocks at end of the year. The result, designated as "net available for consumption" may or may not agree with actual consumption as reported but does indicate quantity of material that must have been consumed during the year presupposing the accuracy of the component figures.)

The Year 1931 *in Tallow and Greases*

THE suggestion has already been put forth earlier in this article that whale oil consumption will be heavier this year than last in the United States. Several facts were recited to show why this would be so. Stocks of whale oil on September 30th according to the Bureau of the Census quarterly report exceeded those of March 31st by 55% but were 13% lower than on June 30th. Part of the larger supplies on September 30th can be credited to seasonal arrivals during the second quarter, but the heavier commitments for deliveries out of last season's crop of oil were likewise a material factor in the expansion of stocks. However, there is indication in the reduction in stocks since June 30th that consumption is absorbing a certain volume of the supplies.

In contrast total stocks of all oils (including those of the minor group going to the soap kettle) were 4.7% lower at the end of June than the close of the first quarter and had increased at the end of September less than 2% over the March quarter.

Since October 1st there has been a certain liquidation of tallow inventories accompanied by some improvement in prices but at the end of the third quarter accumulated supplies were 22% larger than the same date in 1930 and likewise about 25,000,000 pounds in excess of stocks on hand at the beginning of 1931. In fact, except for last year, tallow stocks have been materially lower on January 1st of every year since 1925 and including 1921. There has been a progressive gain in stocks each quarter since March 31, 1930, the gross of the increase to September 30th being 56,500,000 lbs. or exactly 50%. Production increased each quarter of the past year over the corresponding three months of last year but fell off about six million pounds in the September quarter as compared with the June quarter. There was a gain of about 15% in the net quantity of tallow available for consumption for the first nine months of the year as compared with a similar period in 1930. The consumption of inedible tallow and greases by the soap industry is estimated to have increased on this basis from a proportion of 32% in 1930 to 35% for the first nine months of 1931.

Much of that which has been written concerning tallow could be related with equal truth concerning white, yellow and brown greases. As with tallow, supplies of these greases on September 30th surpassed by a comfortable margin quantities on hand the first of each year since 1925 (as well as 1921) and were 40% above the corresponding date of 1930. The expansion was more noticeable with the white and brown varieties than the yellow. A gain of 1,400,000 pounds in white grease production during the first nine months (1931) was almost counterbalanced by the shrinkage in production volume reported for yellow grease. The chief increase was in brown grease—5½ million pounds. Each quarter registered a substantial contribution to this gain, a partial explanation being possibly greater care practiced in the separation of hotel and restaurant kitchen greases and bones from other refuse prompted by a more general desire to economize although prices paid for such wastes are lower than a year ago.

Below there are presented figures on net availability of oils and fats for consumption for the first three quarters of 1931 which will serve as an annex to the table immediately preceding:

	Percent Total Consumption	9 mos. 1930	9 mos. 1931
		(In 1,000 pounds)	
Whale oil	100	47,601	63,023
Tallows and greases	88 } 68 }	343,529	368,330
Palm oil	90	168,415	197,683
Coconut and palm kernel oils	60	311,926	274,937
Cottonseed oil	12	138,800	111,827
Fish oils	51	28,249	46,256

Vegetable and Fish Oils in 1931

THE question, of course, refers only to the consumption of the major oils in these groups entering into soap manufacture. Let us give thought first of all to palm oil. Here we find an increase in net availability for soap making during the first three quarters of this year of 29,000,000 lbs. of 17%. Then, too, the ratio advanced from 16% of total available consumption

to 19% for the present year up to September 30. Stocks as of January 1, 1931, were 78% in excess of the same date the year before. Imports however, were about the same,—200,000,000 lbs.—for January/September period of both years. Hence, since stocks on September 30th, though 22% heavier than the same date in 1930, were 20% lower than on January 1st, 1931, consumption of palm oil through the first nine months of the current year has been 17% more than the same period of 1930.

Coconut and palm kernel oils began 1931 in a more favorable stock position than was the situation with these oils on January 1, 1930. Coconut oil imports were 29,000,000 lbs. 13% larger during January/September, 1931, as compared with the same number of months in 1930. There were also substantially more palm kernels crushed in the United States, a gain in oil from this source of approximately 11,200,000 lbs. To offset these increased supplies there was a reduction in palm kernel oil imports of 12,800,000 and a smaller crush of copra which yielded 28,000,000 fewer pounds of oil for January/September, 1931, than the corresponding months of 1929. Actually therefore the net result, combining imports and production, was a loss in supplies of 800,000 lbs. The net amount available for consumption was augmented through a shrinkage in exports of 7,400,000 lbs. during the 9 months of 1931 while stocks of coconut oil were 60,800,000 lbs. heavier on September 30th than the same date in 1930, against which stocks of palm kernel oil were 3,600,000 lbs. lower. To sum up, then, the net available quantity of coconut and palm kernel oils for consumption during the first three quarters of 1931 was some 60 million pounds under the figure for the same months of 1930. The proportion of coconut and palm kernel oils calculated in total consumption of oils and fats by the soap industry was therefore reduced from 30% in 1930 to 26% for January/September period of 1931.

The combined stocks of crude and refined cottonseed oil were approximately at the same level the first of 1931 as on the identical date of the previous year. Likewise as of September 30th in both years there was no material difference in stock position. A decrease in total available for consumption of 19% reflected naturally in quantity of "foots" destined for the soap kettle may be attributed directly to a corresponding reduction in the production of crude cottonseed oil over the period of the first three-quarters of 1931. This was most marked in the June quarter of 1931, when the production reported to the Bureau of the Census was 56% under the same quarter of the preceding year. Exports of both crude and refined oils were 14% under the January/September, 1930, export total. The availability of "foots" for soap making purposes is estimated to have dropped to 10% for the nine months of 1931 while it was 14% in 1930.

Fish oils, the smallest factor among the fatty ingredients of soaps, were in much improved position on September 30, 1931, as regards stocks as a result of heavier consumption which brought stocks down 23,000,000 lbs. or 20% from amounts reported on hand the first of the year. The actuating influence here was a curtailment in production of menhaden and herring oils during the nine months of approximately 25%. There was a notable expansion (23%) in the volume of our exports, in conjunction with which it might be mentioned that the declining tendency exhibited by our imports since 1928 continued to hold true. Reckoned as 51% of the total available consumption, the actual increase in the employment of fish oils in soap manufacture was thus 22,000,000 lbs. or 78% more during the January/September period of 1931 as compared with the same months of 1930 which occasioned a gain to 4% in the proportion of fish oils to the total of all oils and fats entering into soaps.

Summary

The following conclusions might be drawn from the facts brought out by this article:

1. The world's whale oil production has increased nearly ninefold in the last twelve years but according to latest available data is only 5% of the estimated world supplies of oils and fats entering international trade.

2. Measures proposed for the regulation of the whaling industry, if adopted, will probably result in a reduced volume of production in the future.

3. The production for the present, or 1931-1932 season, will be a negligible factor in the total of available supplies of oils and fats for the coming year.

4. Actual consumption of whale oil in the United States in 1931 will be greater than the previous year, but stocks on hand in this country at the end of the year will be heavy.

5. Tallow constitutes, on the basis of volume, 6.8% of the world's estimated commercial production of oils and fats.

6. The soap industry of the country offers an outlet for 7¼% of oils and fats supplies of the world, and of this quantity, over half is tallow (largely domestic inedible) and coconut oil. The largest bulk of fats is comprised of the two mentioned as well as animal greases, palm oil, whale and fish oils, with whale oil furnishing but 4.4% in 1929.

7. The estimated percentage of inedible tallow entering into soap manufacture declined from 43½% in 1924 to 32% in 1930, but increased during the first nine months of 1931 over 1930. Palm and coconut oils made up much of this deficiency. Estimated consumption of oils and fats by the soap industry gained 44% in the six years ending with 1930, but animal fats increased in consumption volume only 7%, the percentage of whale oil remaining virtually unchanged in relation to total consumption of oils and fats in soaps.

8. Stocks of tallow on October 1 were 50% larger than on the same date the year before. Stocks of palm oil October 1 were 20% less than on the first of the year. Coconut oil supplies were in excess of those at hand at the beginning of the year.

—o—

Slurs against oleomargarin have been denounced by the U. S. Federal Trade Commission in a series of complaints charging unfair competition in the circulation of malignant untruths about this product. Names in the complaints are National Dairy Union, Washington, and Crescent Creamery Co., Sioux Falls, S. D.

—o—

"Market for Marine Animal Oils in the United States" is the title of a report issued by the U. S. Bureau of Fisheries, available through the Superintendent of Documents, Washington. It discusses, domestic supply, uses, marketing methods, prices and possibility of future development of the market for marine animal oils.

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It has been proposed to the Canadian High Commissioner in London that a duty be placed on vegetable oils coming into Canada, with a preference to Great Britain. In 1931 approximately 80,000,000 pounds of crude vegetable oil were sent into Canada free of duty for use in making of shortening, the bulk coming from United States and China.

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A proposal to tax oleomargarine 10 cents a pound has been passed on favorably by the lower house of the Kentucky State Legislature.

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Factors in Pine Oil

(*From Page* 109)

of a given composition which will have the maximum possible phenol coefficient.

A manufacturer may desire to use a particular base for reasons best known to himself. This base, however, may not have very good emulsifying properties. Therefore, the properties of a pine oil to which this manufacturer should give first consideration are the emulsifiable properties, and secondly, to the tertiary alcohol content, because, as has been shown here, to obtain the maximum possible phenol coefficient of a given pine oil, an efficient and stable emulsion is absolutely necessary.

Another manufacturer may use a base which has exceptionally good emulsifying properties. Therefore, the manufacturer may give first consideration to the tertiary alcohol content and secondly, consideration to the emulsifiable properties of a pine oil. Naturally, the disinfectant made by the second manufacturer might be expected to have a higher phenol coefficient than the one made by the first manufacturer, due to the fact that the emulsifying properties of his base are such that he can efficiently emulsify a pine oil having a higher tertiary alcohol content than the pine oil which must be used by the first manufacturer, for, as has been quite conclusively shown, all other factors being equal, the disinfectant made with a pine oil having the highest tertiary alcohol content will produce the highest phenol coefficient.

It is therefore apparent that a manufacturer may, through the selection of an incorrect type of pine oil to compound with his base, produce a disinfectant quite deficient in its phenol coefficient. Also that one manufacturer may use a pine oil having a comparatively low percentage of tertiary alcohols, say 60% to 65% and another may use one rich in tertiary alcohols, 75% to 80%, while the phenol coefficient of the disinfectant made by each manufacturer may be exactly the same.

—o—

F. D. A. Test References

(*From Page* 121)

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Liquid Caustic Soda

(*From Page* 33)

cautions which should be taken to obtain correct readings. The stem and body should be free of adhering crystals as these will give an incorrect reading. The hydrometer should be lowered gradually into the solution until it floats. The stem should be wet about ½" above the solution line in order to avoid surface-tension errors. Wetting more than ½" of the emergent stem tends to weight down the instrument, especially with the more viscous solutions. The scale should be read through the liquid with the eye on a level with the liquid surface.

For precise determination of the caustic content, chemical analysis must be resorted to as follows:—Weigh to the accuracy of a tenth of a milligram, in a small weighing bottle, about three grams of the caustic liquor. (Using a 5 ml pipette that has the tip cut off, transfer twenty to twenty-five drops of the liquor into the weighing bottle. This is approximately a 3.0 gram sample.)

Run from a burette 30 ml of $^{N}/_{1}$ Hydrochloric Acid into a 250 ml beaker with about 100 ml of distilled, carbon-dioxide-free water. After removing the stopper from the weighing bottle, place both in the acid solution and titrate to the end point, using xylene cyanol-methyl orange solution as the indicator.

Record the ml. acid used. From the titrations:

$$\frac{\text{Ml} \times .031 \times 100}{\text{Wt. of sample}} = \%\ Na_2O$$

$$\frac{\%\ Na_2O \times 100}{76} = \%\ Na_2O\ 76\%\ \text{Basis}$$

When it is desired to determine the per cent sodium carbonate and the actual NaOH, the same set up is used as above, except that the first indicator used is phenolphthalein. After the titration has been carried to a careful end point and recorded, the xylene cyanol-methyl orange indicator is added and the titration is continued to the end point and recorded.

When the amount of carbonate is two per cent or less, we find this method very accurate.

Let the phenolphthalein titration be represented by A, and the xylene cyanol-methyl orange titration by B.

$$\frac{(B-A) \times 2 \times .053 \times 100}{\text{Wt. of sample}} = \%\ Na_2CO_3$$

$$\frac{(B-2\ [B\text{-}A]) \times .040 \times 100}{\text{Wt. of sample}} = \%\ \text{Actual NaOH}$$

—o—

Fights Coconut Oil Tariff

(*From Page* 41)

Only in its use in oleomargarine, for which purpose 23% of the coconut oil importations are employed, could coconut oil be stated to be in any way competitive with the products of American agriculture. In this instance, however, it was insisted by Mr. Craig, that the liberation of the Philippines in order to secure a duty on Philippine coconut oil would be absolutely devoid of any benefit to American dairymen for two reasons: first, the effect of the existing duty on coconut oil if levied against Philippine coconut oil would be to increase the price of the kind of oleomargarine into which it goes, only 1 16/100 cents per pound, whereas the average price difference between oleomargarine and butter over the period of the past ten years has been approximately twenty-two cents per pound. This he pointed to as evidence that there would be no possibility of equalizing the cost of butter and oleomargarine by making Philippine coconut oil dutiable as contended by the agricultural lobbyists in Washington.

He further stated that even if coconut oil imports into the United States were cut off entirely, it would benefit the American dairy farmer in no degree, as there is a great exportable surplus of domestic produced oils and fats amounting to one billion pounds per annum quite suitable as oleomargarine ingredients which could be drawn upon to fill the gap should the one hundred and fifty-six million pounds of coconut oil required for the manufacture of so-called nut margarine be shut out of the United States.

—o—

Nearly three-fourths of all grease and tallow sales are made direct to the consuming industries such as the soap industry, rather than to wholesalers or retailers, according to figures collected in the United States 1929 census of distribution. There are approximately 300 plants in the country engaged primarily in making grease or tallow. Total sales by these plants in 1929 totaled $59,815,000.

—o—

For the fiscal year ended October 31, 1931, Wilson & Co., Chicago, reported a consolidated net loss of $2,017,155, after inventory losses, depreciation and interest charges. This compared with a net profit of $2,542,656, or $8.89 a share on 286,026 shares of 7 per cent preferred stock, in the previous fiscal year.

INSECTICIDE AND DISINFECTANT SECTION

A Section of SOAP

The Better the SPRAYER The Better the SPRAY

SUPER METAL ACME BILT WARE

Acme Superbilt Combination Sprayer No. 10

Acme Sprayer No. 370

Acme Jr. Duster No. 355

However effective the insecticide or repellant, its measure of satisfaction and success depends largely upon the mechanical excellence of the SPRAYER, or ATOMIZER.

This Combination Chemical Sprayer Gets Results

A Superbilt Acme Combination Sprayer with a greatly improved patented air regulator making it capable of throwing any thickness of spray from a heavy fog to a fine mist. Manufacturers and users prefer it because it is adaptable to almost any demand. Works equally well with either light or heavy oils or spraying materials. Very powerful and strongly made. Capacity 1½ gallons.

Acme "370" a Leader

A very popular insecticide sprayer because of its surpassing features such as the curved syphon tube which permits spraying straight up to ceilings and corners. Also the air chamber equipped with positive leather cup that will stay alive and efficient as long as sprayer lasts. Sprays very fine; air hole in can screw prevents syphoning when not in use. Capacity 12 ounces.

A Little Dandy

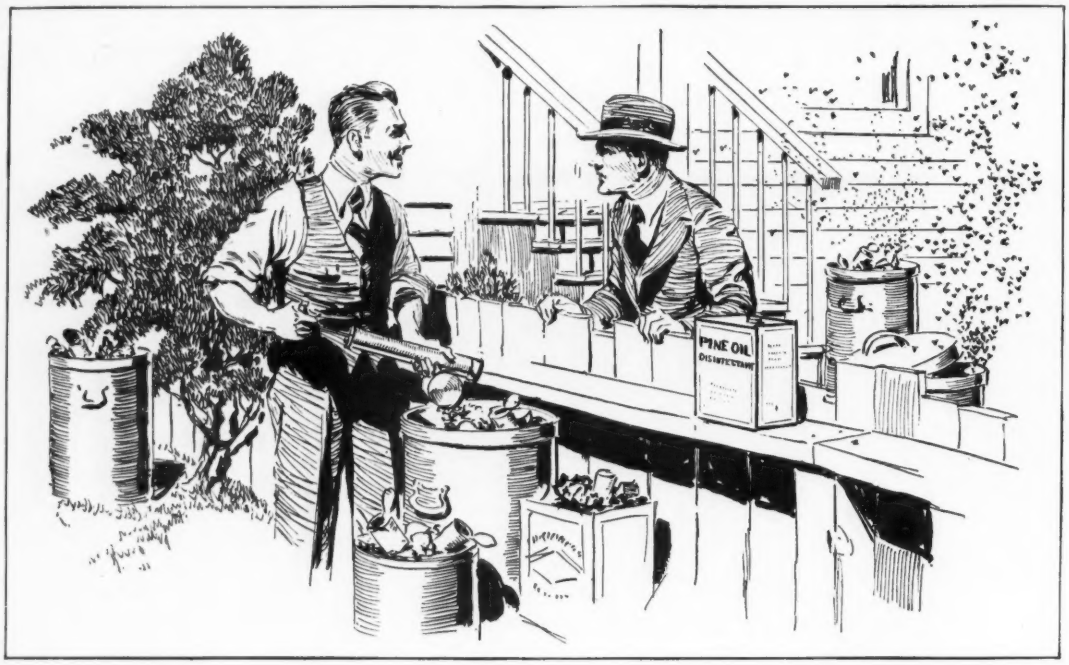
The Acme Jr. Duster throws uniform volume whether up or down. Anti-clogging; large opening makes filling easy. For handy use around the house exterminating roaches, ants, mosquitoes, flies.

We Make Any Kind of Sprayer You Need

Send for catalog of our line. If you do not find a sprayer suited to your particular product, we will make one for you. Let us hear from you.

Potato Implement Co.
Traverse City, Mich.
Factories at Traverse City, North St. Paul and Minneapolis

Say you saw it in SOAP!



"It's easy to use, and it certainly works"

"There are no flies or breeding places on this side of the fence, Bill. Why don't you get a spray gun and a can of Pine Oil Disinfectant and get rid of them on your side? It smells nice, too, doesn't it? I noticed the odor down at the office, and I asked the building superintendent what it was. You'd better get some; it's good for a lot of things around the house, and I'll bet they'd be glad to hear about it down at the shops."

P. S. Bill took his neighbor's advice. Now he knows there aren't any flies or germs around his home, and they were glad at the shops, too, when Pine Oil Disinfectant was made known to them.

Steam-distilled Wood Turpentine
Wood Rosin
Steam-distilled Pine Oil
Alpha Terpineol
Commercial Abietic Acid
Ethyl Abietate
Nitrocellulose
Chemical Cotton

Hercules Yarmor Steam-distilled Pine Oil when made miscible by disinfectant manufacturers repels and kills flies, mosquitoes, and other insects. It destroys contagious germs that cause diphtheria, scarlet fever, typhoid fever, and cholera.

When diluted it has value as a detergent for scrubbing walls and floors. It leaves a fragrant, piney odor.

NAVAL STORES DEPARTMENT

HERCULES POWDER COMPANY
INCORPORATED

961 Market Street, Wilmington, Delaware

Branch Offices...Chicago...New York...St. Louis...Salt Lake City...San Francisco

Hercules Powder Company, 961 Market Street, Wilmington, Delaware.

Please send a sample of Yarmor Steam-distilled Pine Oil ☐

Please send information regarding Yarmor Steam-distilled Pine Oil for disinfectants ☐

Name..... Company .....

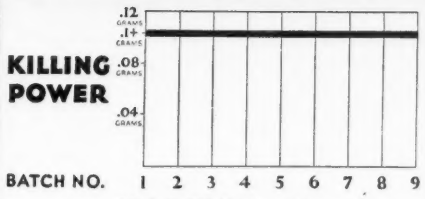
Street..... City..... State.....

QQ-19

Say you saw it in SOAP!

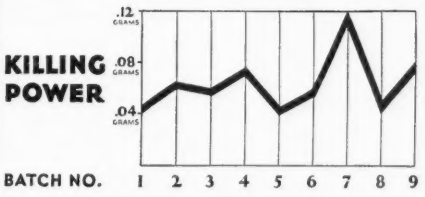
Killing Power ALWAYS THE SAME

KILLING POWER
of Pyrocide No. 20 compared with unstandardized Pyrethrum extracts



PYROCIDE No. 20

When you use Pyrocide No. 20 as the base for your fly spray or household insecticide, using one part Pyrocide in 20 parts light mineral oil, the pyrethrin content is stabilized at .1+ grams per 100 cc.—every batch the same—because the pyrethrin content of Pyrocide No. 20 is standardized.



NOT STANDARDIZED
(Pyrethrin Content Fluctuates)

When you use pyrethrum concentrate made by direct extraction (and not standardized) the pyrethrin content of each batch of fly spray or household insecticide will vary, as widely as from .04 grams to .12 grams per 100 cc.

That's why you save money with Pyrocide No. 20

Pyrocide No. 20 is the *only* standardized concentrated extract of Pyrethrum Flowers on the market. The only Pyrethrum extract with a guaranteed, absolutely stabilized Pyrethrin content. And this fact saves you money. You can guarantee the toxic strength of your finished product—and you lower the cost of your fly spray.

As a result of this standardization, it is only natural that Pyrocide No. 20 met with such outstanding approval this year. *Millions of gallons of finished insecticide were made from Pyrocide No. 20 in 1931.*

And now—due to our new laboratories established in Japan, we can buy flowers of a higher pyrethrin content at the same price. So we have stepped up Pyrocide No. 20 to contain 20% more active principle—AT NO ADDITIONAL COST TO YOU. Pyrocide No. 20 is now guaranteed to contain 2.15 grams of pyrethrins per 100 cc. Each gallon contains all of the active principle from 20 pounds of pyrethrum flowers having a pyrethrin content of .90% pyrethrins.

Don't be fooled by imitators of Pyrocide No. 20. Insist on standardization. *Watch the color.* Pyrocide No. 20 makes a yellow insecticide—the true color of proper direct extraction.

Pyrocide No. 20 is sold only to insecticide manufacturers and is shipped in steel drums of 5, 10, 15, 30 and 53 gallons. Warehouse stocks are carried at New York, Los Angeles, Minneapolis and many foreign points. For your own percolation, we can also supply you with pyrethrum flowers with known pyrethrin content in whole, ground and powdered form.

McLAUGHLIN GORMLEY KING COMPANY
1715 Fifth Street SE., Minneapolis • *Pyrethrum Specialists Since 1901*

PYROCIDE No. 20
STANDARDIZED EXTRACT OF PYRETHRUM FLOWERS

Say you saw it in SOAP!

Pine-Gloss Cleanser

A Beauty TREATMENT *for* DOWNTRODDEN FLOORS

FINE FOR FINE FLOORS

Recommended for Linoleum, Rubber Inlaid, Tile, Terazzo Floors. Also for Painted and Varnished Woodwork and Furniture.

cleans
preserves
polishes
} *in* **1** OPERATION

PINE-GLOSS CLEANSER

is a thick, golden amber liquid composed of pure vegetable oils saponified, then combined by a special formula with cleansing, fragrant pine oils. A cupful to a pail of hot water cleans faster, easier, safer.

Pine-Gloss will prove a timely and valuable addition to your line.

ATTRACTIVE CIRCULARS AND LABELS FOR YOUR IMPRINT

For your own benefit better get in touch with us on this proven money maker·
And how about the items listed on the bottom?

CLIFTON CHEMICAL COMPANY, Inc.

Clifton Bldg. 246 Front St., N. Y. City

Liquid Soaps—Bases—Dispensers—Disinfectants—Deodorizing Blocks and Containers—and KINDRED PRODUCTS

Say you saw it in SOAP!

INSECTICIDE AND DISINFECTANT SECTION

A Department of SOAP

SOAP is official publication of *The Insecticide and Disinfectant Manufacturers Association.*
Harry W. Cole, Holbrook, Mass., Secretary.

The F. D. A. Method

A METHOD for testing of disinfectants, germicides, and antiseptics has been issued by the Food and Drug Administration of the Department of Agriculture. The method is termed the F. D. A. Test and according to the statement of the Secretary of Agriculture is "prescribed for use, where applicable, in the examination of antiseptics and disinfectants in the enforcement of the Insecticide Act of 1910." The test, which is to replace the Rideal-Walker Method and the Hygienic Laboratory Method, has been in use by the Food and Drug Administration for some time, but this is the first time the exact technique has been published officially in printed form. Phenol coefficient results obtained by the F. D. A. Method are about the same as those of the Hygienic Laboratory Method, but are lower than those obtained with the Rideal-Walker Method.

Although the F. D. A. Test—or any other test,—is not mandatory at present, we understand that it is likely to become so if the Insecticide Act of 1910 is amended to require the bacteriological testing and coefficient labeling of all disinfectants and antiseptics, as is altogether possible. The apparent object of publishing the F. D. A. Test officially by the Department is to permit manufacturers to become fully familiar with it, inasmuch as it is now "prescribed for use" for determinations used in enforcing the Insecticide Act. Under the circumstances, the prompt universal adoption of the official Government method by the industry as a whole seems the only thing to do.

—o—

An Insecticide Standard

THE Committee on Insecticides of the Insecticide & Disinfectant Manufacturers Association has proposed definitely to the membership of the Association that it adopt an official minimum standard for liquid spray insecticides. The proposed minimum standard calls for "downs" of 95% and a "kill" of 60% by the Peet-Grady Method against houseflies. The standard is now being submitted to the membership for a vote, and if it secures a majority, it will then be known as the "official minimum standard" of the Association.

This is a step forward in the insecticide industry, a constructive step which should do a great deal toward improving the general quality of liquid spray insecticides on the market. Bear in mind that this is a *minimum* standard, — the lowest figures which will permit a product to get by. There is still nothing to prevent insecticides with a higher kill keeping their place in the market,—no reason why they should not be indicated as ten or twenty per cent above the accepted minimum.

We urge all members of the Association to vote in the affirmative on this referendum relating to the new minimum standard. Its adoption will mean a material raising of the plane of the business, and will permit the consumer to distinguish between the chaff and the wheat in the choice of insecticide spray products.

Notes of the Trade

John C. Wolke, formerly with Stanco, Inc., New York, became associated with L. Sonneborn Sons, Inc., 88 Lexington Ave., New York, under date of February first.

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United States Chemical Co., Greenville, Ohio, are issuing a series of "Chic Sale" calendars and letters to the trade, written and designed by the famous "Specialist" covering their line of sanitary supplies and equipment. One of their circulars of the series is a replica of the great handiwork of the "Specialist" in the form of a folder.

—o—

L. O. Hillyard, president of the Midland Chemical Laboratories, Inc., Dubuque, Iowa, was elected president of the Central Broadcasting Company, Davenport, Iowa, at the recent annual meeting of the stockholders. The company owns and controls radio stations WOC, Davenport and WHO, Des Moines, both in Iowa. Announcement of immediate construction of a 50,000 watt station, near Iowa City, was announced following the annual meeting.

—o—

A new liquid shampoo possessing sufficient insecticidal power to kill fleas, lice and other insect pests on pets has been introduced by McCormick & Co., Baltimore. The formula was perfected by A. E. Badertscher, holder of the McCormick pyrethrum fellowship at Rutgers University. It has an inoffensive tar odor, and is said to be capable of as effective use on humans as on pets.

—o—

Reilly Chemical Co., Merchant's Bank Building, Indianapolis, have issued a new booklet covering the various coal-tar and other products which it manufactures. The list of products includes phenol, cresols, cresylic acid, high boiling tar acids, naphthalene, special preservative waxes, and disinfectant oils.

—o—

Ralph B. Staats, formerly part owner and general manager of the Fair Manufacturing Co., Memphis, Tenn., has announced that he has disposed of his interest in that company and has started a new company under the name of Ralph B. Staats Company, located at 272 Walnut St., Memphis. A full line of sanitary products, cleaning materials and janitor supplies are being carried.

—o—

Morris W. Bush, head of Alabama By-Products Corp., producers of coaltar products, died January 24 at his home in Birmingham, Ala.

Methods of Testing Antiseptics and Disinfectants

Methods Prescribed for Use in Enforcement of the Insecticide Act of 1910

By G. L. A. RUEHLE and C. M. BREWER
Insecticide Control, Food & Drug Administration

OFFICIAL methods of the Food and Drug Administration of the U. S. Department of Agriculture for testing antiseptics and disinfectants, which methods are used in the enforcement of the Insecticide Act of 1910, have been prepared and outlined by Senior Bacteriologist G. L. A. Ruehle and C. M. Brewer, Associate Bacteriologist, of the Food and Drug Administration. These methods are now official with the Administration and their publication is accompanied by a statement from Arthur M. Hyde, Secretary of Agriculture, as follows: "The methods herein set forth are prescribed for use, where applicable, in the examination of antiseptics and disinfectants in the enforcement of the Insecticide Act of 1910."—[THE EDITORS.]

ALL antiseptics and disinfectants shipped or offered for shipment in interstate commerce or offered for import into or export from the United States are subject to the provisions of the Federal insecticide act, the Federal food and drugs act, or both. In the enforcement of these acts it is necessary to determine the accuracy of the bactericidal and antiseptic claims made for such products. A number of methods have been developed for determining bactericidal effectiveness, but all of them possess certain disadvantages. Of course it is impossible to devise tests which will apply in all cases, but during the past 20 years the Insecticide and Fungicide Board and the Food and Drug Administration have found certain methods to be particularly well adapted to their purposes.

Confusion has arisen from the fact that, in many cases, manufacturers have not used the same methods of testing their products, as a basis for preparing their labels, as those used by the administration. This possibility of misunderstanding would be obviated if the same methods were employed by all, and many manufacturers, recognizing this, have requested information as to methods employed by the Food and Drug Administration. In view of this, it seemed desirable to publish them in a form which would make them generally available.

This circular, therefore, describes briefly the methods usually employed in the insecticide control laboratory for testing official samples of antiseptics and disinfectants. No attempt is made to review the literature of disinfectant testing in detail, but the most important papers relating to the methods here presented are cited.

Determination of Phenol Coefficient[1]

There are in general use at the present time three methods of determining the phenol coefficient; the Hygienic Laboratory (H. L.) method (*11*)[2], that of Rideal-Walker (R-W) (*7*), and the method developed by this laboratory. It had been realized for a long time, especially among qualified workers in the field of phenol coefficient testing, that there were numerous handicaps and minor deficiencies to be encountered in the routine manipulation of both the H. L. and R-W methods. Lloyd P. Shippen, formerly bacteriologist of the Insecticide and Fungicide Board, after much experience in the testing of disinfectants, devised a method for obtaining phenol coefficients, utilizing as its basis the best features of the two older tests. Under pressure of a great volume of routine work this method was first put into practice more than 15 years ago and found to be so satisfactory that it has come to be used for testing the great majority of the germicides now received at the Food and Drug Administration.

George F. Reddish, successor to Doctor Shippen, later published this method under the name, "The R-W modified method" (*5*).

The procedure of Shippen has been little changed, but the standards for the resistance of the test organisms, *Eberthella typhi* (Schröter) Buchanan,[3] and *Staphylococcus aureus* Rosenbach, have been firmly established and provisions for the use of other organisms have been added. The method, as here published, is designated the "Food and Drug Administration phenol coefficient method" or briefly, the "F. D. A. method."

The differences in the three methods are shown in Table 1.

There need be very little confusion arising from substituting the F. D. A. method as a test for products previously tested by either the R-W or the H. L. methods. The phenol coefficients of the large number of substances chemically related to phenol (the only type of disinfectants for which the H. L. method is accepted) (*11*) are, in most cases, practically the same, whether tested by the F. D. A. or the H. L. method. Not only has continued use of the method in this laboratory shown this to be true (*2*), but collaborative experiments in five other laboratories (unpublished) confirm this fact. In comparing this method

[1] For the benefit of those unfamiliar with testing disinfectants a brief statement of the principles of determining phenol coefficients is made. The phenol coefficient is a figure expressing the ratio of the killing efficiency of a disinfectant as compared with that of phenol tested under identical conditions. The sample to be tested is diluted and the dilutions arranged in a series of decreasing concentrations (increasing dilutions). To these a specified amount of the test organism if broth culture is added. At the end of fixed periods of time a small definite portion of the mixture of diluted disinfectant and test organism is transferred to a nutrient culture medium and incubated. No growth in the subculture indicates that the organism has been killed. The greatest dilution (weakest concentration) of the disinfectant killing in a definite time period is divided by the greatest dilution of phenol killing in the same time period. This ratio is the phenol coefficient. It should be noted that the phenol coefficient is not based on a comparison of different time intervals but on a comparison of different concentrations acting for specified time periods.

[2] Italic numbers in parentheses refer to Literature Cited, pg. 121.

[3] Throughout this paper the term *Eberthella typhi* is used for *Bacillus typhosus*, in accordance with the nomenclature adopted by the committee on classification of the Society of American Bacteriologists (1).

TABLE 1.—*Differences in media and manipulation of the three methods of determining phenol coefficient.*

Item	F. D. A. method	R-W method	H. L. method
Composition of medium	Peptone[1], 10 gm..... Liebig's beef extract, 5 gm. Salt, 5 gm..... Water, 1,000 c. c..... Boil 20 minutes.	Peptone[2], 20 gm..... Liebig's beef extract, 10 gm. Salt, 10 gm..... Water, 1,000 c. c..... Boil 30 minutes.....	Peptone[1], 10 gm. Liebig's beef extract, 3 gm. Salt, 5 gm. Water, 1,000 c. c. Boil 15 minutes.
Acidity of medium.....	pH 6.8.....	+1.5. No definite pH.....	Unadjusted but pH between 6.0 and 7.0.
Amount of culture medium in tube.	10 c. c.	5 c. c.	10 c. c.
Amount of culture added to diluted disinfectant.	0.5 c. c. to 5.0 c. c.....	0.5 c. c. to 5.0 c. c.....	0.1 c. c. to 5.0 c. c.
Resistance of test culture to phenol (dilutions killing in 10 minutes but not in 5 minutes).	1-90	1-90 to 1-110.....	No limits stated.
Condition of tube in test...	Plugged with cotton.....	Plugged with cotton.....	Open tubes.
Temperature of test.....	20° C.....	15-18° C.....	20° C.
Time intervals of the test..	5, 10, and 15 minutes.....	2½, 5, 7½, and 10 minutes..	5, 7½, 10, 12½, and 15 minutes
Amount of medication mixture transferred (size of loop).	4 mm. loop (of No. 23 B. and S. gage wire).	4 mm. loop (of No. 27 Imperial gage wire).	Spiral loop (four spirals wrapped around a No. 13 B. and S. gage wire. Made of No. 23 B. and S. gage wire).
Calculation of phenol coefficient.	Highest dilution not killing in 5 minutes but killing in 10 minutes divided by same for phenol.	Highest dilution not killing in 5 minutes but killing in 7½ minutes divided by same for phenol.	Mathematical mean of highest dilutions showing no growth in 5, 10, and 15 minutes divided by same for phenol.

[1] Armour's. Special batch set aside for disinfectant testing.
[2] Allen and Hanbury's.

with the R-W method, similar results in general are obtained, although a somewhat lower coefficient usually results with coal-tar products having high coefficients. However, the higher results sometimes obtained by the R-W method may be misleading. R-W broth is not well adapted for the optimum growth of the test organism; hence negative subcultures frequently indicate that the organism has been killed, when in fact it may have been only rendered incapable of growing in this culture medium.

The curtailment in labor, time, and material through the use of the F. D. A. method renders it particularly valuable where a large number of samples are involved. The F. D. A. method is considerably superior to the R-W method in producing consistent results (*4*, *12*). The medium employed is better adapted to bacterial growth, and the technic is not restricted to the use of one test organism (*Eberthella typhi*) as is the case in the R-W and H. L. methods. Moreover, the stock cultures of *E. typhi* and *Staphylococcus aureus*, the organisms principally used in germicidal testing, remain sufficiently constant in their resistance to phenol, when grown on an adjusted medium, to necessitate but one phenol control, though two controls are used frequently as an additional check. This allows the use of nine dilutions of the unknown with 30-second intervals between transfers, or 14 when 20-second intervals are used. With a little practice, 20-second intervals allow sufficient time.

The F. D. A. method will be used by this laboratory in determining the dilutions at which miscible coal-tar disinfectants, and many other products to which the method is applicable, should be used for disinfecting purposes. As heretofore, this dilution should be at least equal in strength to a 5 per cent solution of phenol when tested against *Eberthella typhi* (20 times the phenol coefficient figure) and should be based on a phenol coefficient not higher than that obtained by the F. D. A. method.

Food and Drug Administration Method

THE test organism is a 22-26 hour culture of *Eberthella typhi* (Hopkins strain) incubated and grown in nutrient broth at 37° C. The broth contains the following ingredients: 5 gm. of Liebig's beef extract, 5 gm. of chemically pure sodium chloride, and 10 gm. of Armour's peptone (for disinfectant testing) in 1,000 c. c. of distilled water. The mixture is boiled for 20 minutes, made up to original weight (or volume) with distilled water, and adjusted with NaOH to pH 6.8 using the colorimetric method (*3*, *p. 405-421*). It is then filtered through paper, tubed (10 c. c. to each tube), and the tubes plugged with cotton and sterilized at 15 pounds pressure for 40 minutes. The test culture is transferred daily in this medium for not more than one month. At the end of each month, a fresh transfer is made from the stock culture. The stock culture is carried on agar slants of the same composition as the broth medium plus 1½ per cent Bacto-Agar (Difco), adjusted to pH 7.2 to 7.4. This medium is also filtered, tubed, plugged with cotton, sterilized, and slanted. The stock culture is transferred once a month, and the test organism is taken from the month-old stock culture. When the test organism has not been transferred daily, it is advisable to make four or five consecutive daily transfers in broth before using it for testing purposes, to be reasonably sure of its conforming to the phenol resistance requirements. When only one transfer has been skipped the following transfer from the 48-hour culture is usually satisfactory for use after 24 hours. Transfers are made with the platinum loop used in the test. Only cultures giving readings within the following limits are considered satisfactory:

Phenol:	5 minutes	10 minutes	15 minutes
1-90	+	+	0
1-100	+	+	+
or			
1-90	0	0	0
1-100	+	+	0

The following reading is that most usually obtained and is the most convenient:

Phenol:	5 minutes	10 minutes	15 minutes
1-90	+	0	0
1-100	+	+	+

Phenol

The phenol used must meet the requirements of the United States Pharmacopoeia, and in addition the congealing point must not be below 40° C. A 5 per cent

solution may be used as a stock solution if kept in a relatively cool place in well-stoppered amber-colored bottles protected from the light. This 5 per cent solution should be standardized with decinormal bromine (described under "phenol" (*10, p. 283*), or with sodium bromide and bromate solution (*9, pp. 404-405*).

Apparatus

Besides a number of accurately graduated pipettes, 100-c. c. glass-stoppered graduates or volumetric flasks are almost essential for the making of correct dilutions. All

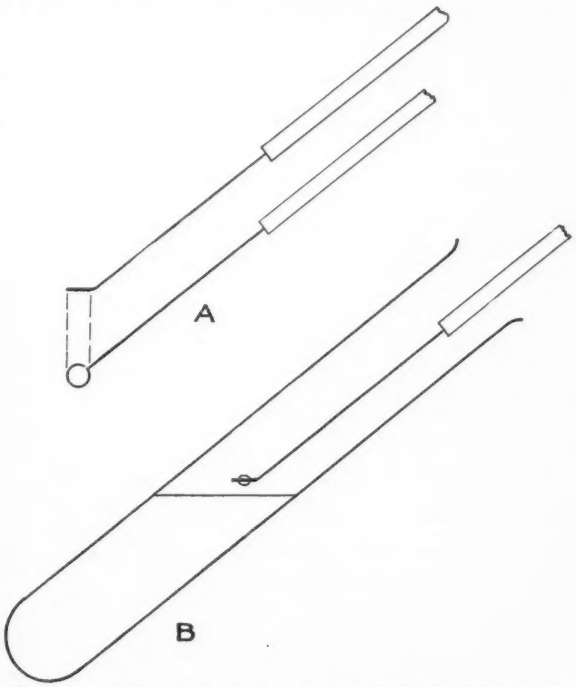

FIGURE 1.—A, Type of needle used in the F. D. A. test; B, the relationship of loop to the surface of the liquid on transfer

pipettes and graduates should be standardized. The test tubes for containing the dilutions should be large enough to permit transfers being made without touching the sides with the transfer needle. Lipped pyrex (to withstand constant flaming) test tubes 25 by 150 mm. serve very well as these seeding or medication tubes. A water bath for holding the dilutions at the desired temperature must be provided. To maintain the temperature practically constant during the period of the test, the bath should be made so as to contain a relatively large volume per surface area, and should be insulated. The lid is made with well-spaced holes admitting the 25-mm. tube, but not the lip. The most convenient form of subculture tubes (tubes containing medium for incubating the tested organisms, as well as for growing the test culture) are ordinary non-lipped bacteriological test tubes 20 by 150 mm. The racks for holding the subculture tubes may be any convenient style. Blocks of wood with a series of holes bored in them are quite satisfactory. Dimensions depend somewhat on the size of the incubator, but the holes should be well spaced to insure quick selection and easy manipulation during the test. It is an added convenience to have the holes large enough to admit the medication tubes while dilutions are being made. The transfers are made with a 4-mm. (inside diameter) single loop of number 23 B. & S. gage platinum wire, 1½ to 3 inches long, set in a suitable holder such as an aluminum or glass rod approximately 0.5 cm. in diameter. (Fig. 1, A.)

Procedure

One per cent stock dilutions of the substance to be tested (or any other convenient dilution of the disinfectant, depending on the strength) are made up, usually in the glass-stoppered cylinders or volumetric flasks from which the individual dilutions are then prepared. For rapid routine work, the final dilutions may be made directly in the medication tubes. In this case all excess over 5 c.c. must be removed. For more precise work and when high dilutions are required or volatile substances are dealt with, it is preferable to make up all of the dilutions in volumetric flasks and then transfer 5 c. c. of the final dilution to the medication tubes. These tubes containing 5 c. c. of each dilution (including the phenol control) are placed in the water bath at 20° C, for five minutes until the temperature of the bath is reached. Even slight variations in temperature may affect the results. The dilutions should cover the range of the killing limits of the disinfectant within 5 and 15-minute periods and should at the same time be spaced sufficiently close together to insure the desired accuracy. Fve-tenths of a cubic centimeter of the test culture is then added to each of the dilutions at a time interval corresponding to the interval at which the transfers are to be made. Thus by the time 10 tubes have been seeded at 30-second intervals, four and one-half minutes will have elapsed and a 30-second interval intervenes before the transference to the subcultures is commenced. The culture is added from a graduated pipette holding sufficient culture to seed all the tubes in any one set. The pipette may be loosely plugged with cotton at the mouth end before sterilizing, as a precautionary measure. Unfiltered culture is used, but it should be thoroughly shaken 15 minutes before use and allowed to settle. The temperature of the culture should be practically that of the water bath before being added.

In inoculating the medication tubes they should be held in a slanting position, after removal from the bath, and the culture run in without the tip of the pipette touching the disinfectant. The tip may be allowed to rest against the side of the tube just above the surface of the liquid. The tubes are agitated gently but thoroughly after the addition of the culture to insure even distribution of the bacteria. Five minutes from the time of seeding the first medication tube, transfer 1 loopful of the mixture of culture and diluted disinfectant from the medication tube to the corresponding subculture tube. To facilitate transfer of uniform drops of the medication mixture, the loop is bent to form a slight angle with the stem and the medication tube is held at an angle of 60°. In other words, as the loop is withdrawn, its plane should be parallel with the surface of the liquid. (Fig. 1, B.) At the end of 30 seconds, a loopful is transferred from the second medication tube to the second subculture tube and the process continued for each successive dilution. Five minutes from the time of making the first transfer, a second set of transfers is begun for the 10-minute period and finally repeated for the 15-minute period. Before each transfer the loop is heated to red heat in the Bunsen flame and the mouth of every tube is flamed. Sterilization of the loop is effected immediately after making the previous transfer (before replugging the tubes) to allow time for sufficient cooling. Time does not permit flaming the tubes after making the transfer. For this reason, care in transferring and seeding is necessary. Due caution is observed to prevent either the seeding pipette or the transfer needle from touching the sides or mouth of the medication tube; neither should cotton threads be found adhering to the sides or mouth of these. After completion of the transferring, the subculture tubes are incubated at 37° C. for 48 hours and results read. Macroscopic examination usually suffices for this, but occasionally agglutination with antityphoid serum will aid in reading doubtful results. A 3-day incubation period or agar streak or microscopic examination may be resorted to in determining feeble growth, especially when organisms other than *Eberthella typhi* are used.

There are certain types of germicidal agents, such as many of the mercury compounds, which give very high results by phenol coefficient tests (*8*). Due to the high inhibitory value of such substances in preventing growth in the subcultures these figures are frequently misleading. For germicides used in the disinfection of such objects as surgical instruments, this is of particular im-

portance and must be taken into account. Failure to appreciate this characteristic of certain compounds is much more likely to lead to error when *Staphylococcus aureus* is used rather than *Eberthella typhi* as the test organism. That false values may not be obtained for products of this type, or for any other disinfectant giving suspiciously high results, the subcultures should contain very large amounts of medium (not less than 200 c. c.) or they should be retransferred by carrying at least 4 loopfuls from the first subculture to a second tube of broth, as recommended by Shippen (*8*).

Other groups of disinfectants in common use, for which the phenol coefficient method of testing is not well adapted, are those compounds containing chlorine as the active agent as well as oxidizing agents in general. These are affected so materially by the presence of organic matter that a phenol coefficient statement may grossly misrepresent their value under practical conditions of use and is very apt to be misleading to the consumer when placed on the label.

Calculation of Phenol Coefficient

THE results of the test are expressed in terms of the phenol coefficient. This represents the germicidal value of the diluted disinfectant as compared with the diluted phenol control. It is a figure obtained by dividing the numerical value of the greatest dilution (the denominator of the fraction expressing the dilution) of the disinfectant capable of killing *Eberthella typhi* in 10 minutes but not in 5 minutes, by the greatest dilution of phenol showing the same results; that is, by the phenol control. Thus, if the results were as follows:

	5 minutes	10 minutes	15 minutes
Disinfectant (X):			
1-300	0	0	0
1-325	+	0	0
1-350	+	0	0
1-375	+	+	0
1-400	+	+	+
Phenol:			
1-90	+	0	0
1-100	+	+	+

The phenol coefficient would be $\frac{350}{90} = 3.89$.

If none of the dilutions show growth in 5 minutes and killing in 10 minutes, the hypothetical dilution may be estimated in certain cases. This may be done only when any three consecutive dilutions show the following results:

The first, no growth in 5 minutes; the second, growth in 10 minutes but not in 15 minutes; and the third, growth in 15 minutes; for example:

If the results were as follows:

	5 minutes	10 minutes	15 minutes
Disinfectant (X):			
1-300	0	0	0
1-350	+	+	0
1-400	+	+	+
Phenol:			
1-90	0	0	0
1-100	+	+	0

the estimated phenol coefficient would be $\frac{325}{95} = 3.42$.

To avoid giving an impression of fictitious accuracy, the phenol coefficient is calculated to the nearest 0.1 unless the coefficient is less than 1.0. Thus, in the examples cited above, the phenol coefficients would be reported as 3.9 and 3.4 instead of 3.89 and 3.42.

In the preceding description, *Eberthella typhi* has been mentioned as the test organism. Wherever any expression of phenol coefficient occurs in literature, on labels, etc., it is assumed to mean the *E. typhi* phenol coefficient, unless otherwise stated. It is, however, the distinct intention of this department not to limit the test to the use of one organism. In fact, the test has been found adaptable to the use of a wide variety of bacterial species in the determination of phenol coefficients. In cases where some of the more strictly parasitic bacteria are used, modifications in media are necessitated, and, of course, a change in the phenol dilutions. The writers are not in a position at this time to prescribe the limits of resistance for many of the organisms that might be used. Therefore discussion of the exact technic is here omitted, with the exception of that for *Staphylococcus aureus*. Suggestions for the use of certain representative types may, however, be found in a paper by Reddish (*5*). When any test organism other than *E. typhi* is used it should be distinctly designated when stating the phenol coefficient.

S. aureus has been found to be an extremely useful organism for testing disinfectants and antiseptics and has been used for this purpose for a number of years. When substituted in the above test the technic remains exactly the same. The phenol dilutions, however, must be changed. The resistance of any strain of *S. aureus* used in this test must come within the following limits: At 20° C. it must survive a 1-60 dilution of phenol for 5 minutes and a 1-70 dilution for 15 minutes. The following is the minimal resistance that would be acceptable:

	5 minutes	10 minutes	15 minutes
Phenol:			
1-60	+	0	0
1-70	+	+	+

In the bacteriological examination of disinfectants, the *Eberthella typhi* and the *S. aureus* phenol coefficients give, in general, sufficient information to render tests with other organisms unnecessary, except in special instances. The commonly accepted criterion that disinfectants for general use be employed at a dilution equivalent to the germicidal efficiency of 5 per cent phenol against *E. typhi* (that is, 20 times the *E. typhi* phenol coefficient) allows a reasonable margin of safety for the destruction of infective agents likely to be the object of general disinfection about premises with the possible exception of *Mycobacterium tuberculosis*. *S. aureus*, due to its ubiquity, resistance and ever-ready tendency to cause infection, should always be employed in testing those substances recommended for personal use or as applications for wounds. If the disinfectant is recommended for use externally the temperature of test should be 20° C., but where such substances are recommended for use in the body cavities, such as for mouth washes, gargles, douches, etc., this test should be conducted at 37°. In such case the test should be designated "The F. D. A. method (special) *S. aureus*, 37° C." At body temperature the *S. aureus* should show the following resistance to phenol:

	5 minutes	10 minutes	15 minutes
1-80	+	0	0
1-90	+	+	+

Or

	5 minutes	10 minutes	15 minutes
1-80	+	0	0
1-90	+	+	0

The previous description of this method (*5*) differed from this only in allowing a slightly wider latitude in the resistance of the test organism against phenol.

Other Tests for Germicides[4]

THE limitations of the phenol coefficient make it necessary in some cases to judge the germicidal prepara-

[4] According to current usage the word "antiseptic" has two meanings: to kill bacteria or to prevent their growth, depending upon the use of the product. Products such as salves, ointments, and dressings that remain in contact with the body for long periods of time, may be designated properly as antiseptics if they inhibit the growth of bacteria. On the other hand, mouth washes, douches, gargles, and preparations of like nature are in contact with the body for but brief periods of time and exert negligible inhibitory action. These may be described properly as antiseptics only if they will destroy bacteria under the conditions of use; that is, in the dilutions recommended and in a period of time comparable to that in which they would have an opportunity to act when used as directed.

(*Turn to Page* 119)

The Important Factors in Pine Oil Disinfectants

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THE value of a disinfectant is dependent upon its power to kill bacteria. This power is referred to and is generally expressed as the phenol coefficient. There is a large variety of disinfectants on the market, but the ones which we propose to discuss are those containing pine oil as the partially or wholly active ingredient. These are generally referred to as pine oil disinfectants and in most cases consist of pine oil, an emulsifying compound or base, and water in varying proportions ranging from 60% to 80% of pine oil, 10% to 30% of water and 10% to 30% of dry base. The pine oil is generally a steam distilled pine oil. The base is either a soap or the sodium or potassium salt of a sulphonated oil. The soap may be either a rosin soap or the soap of fatty acids made from linseed oil, palm oil, castor oil, corn oil, tallow, etc. The sulphonated oil is generally sulphonated castor oil although other sulphonated oils may be and are often used.

Pine oil disinfectants are seldom used in the concentrated form as per the above formula range but are diluted generally with water to a concentration ranging from 10% to 2%. Since the pine oil is the active component in a wholly pine oil disinfectant, then because of this dilution and in order that the highest possible bacteria killing efficiency may be obtained with a given pine oil, it must be highly and uniformly dispersed in the diluted form. This dilution is referred to as the emulsion and therefore, it is apparent that the emulsifiable properties of a pine oil and also the emulsifying properties of a base are extremely important factors in a pine oil disinfectant. The phenol coefficient of a disinfectant is dependent upon these two factors as well as the percentage of bacteria killing compounds contained in the pine oil.

In other words, there are three very important factors upon which the phenol coefficient of a Pine Oil Disinfectant depends, namely: 1—The amount of bacteria killing compounds a given pine oil contains; 2—the emulsifiable properties of the pine oil; 3—the emulsifying properties of the base.

FIRST Factor—The Percentage of Bacteria-killing compounds in Pine Oil—We have not actually determined the phenol coefficient of the different compounds of steam distilled pine oil in their free state and therefore cannot at this time state what the phenol coefficient of them might be, neither can we enumerate definitely just which compounds have bacteria killing power, except terpineol and borneol. We do know, however, that terpineol and borneol do have these properties and the evidence very definitely indicates that whatever the phenol coefficient of the other compounds might be, terpineol and borneol are the most active. Of these two, authorities, or rather investigators, differ as to the phenol coefficient of each. Some claim a phenol coefficient of 4.5 to 5 for terpineol and 6 for borneol, while others report a phenol coefficient of 6 for terpineol and less than 1 for borneol.

Some pine oil manufacturers refer to those compounds present in pine oil having germicidal properties as tertiary alcohols and suffice it for our purpose here to use this same term when referring to these compounds. Then, the first factor above referred to is the pine oil which has the highest percentage of tertiary alcohols might be assumed as having the highest phenol coefficient.

SECOND Factor—The Emulsifiable Properties of a Pine Oil—The phenol coefficient of a pine oil is dependent upon its emulsifiable ability with water for two reasons; first, as previously stated, a pine oil disinfectant is generally used in a diluted form (emulsion), and second, the phenol coefficient of pine oil is determined only in a dilute aqueous solution, 1% or less, and in order that the pine oil may be uniformly distributed throughout the water, which it necessarily has to be if it is to exert its maximum killing power, it must have good emulsifiable properties or those properties necessary for maximum and perma-

nent dispersion. The oil which can be diluted to the greatest extent with water and have or exert a given germicidal value is the oil which has the highest phenol coefficient.

In order that I may more clearly explain why the proper and efficient dispersion of pine oil in a disinfectant (emulsion) is necessary in order that the pine oil may produce its maximum killing power, permit me to compare a disinfectant with a paint. One of the properties of paint is its covering power and all other factors being equal, the paint which will cover the largest number of square feet per unit measure of paint is considered the most efficient. The killing power of a disinfectant may be likened to the covering power of paint in that according to authorities, bacteria are killed by the absorption of pine oil, which is, the very small particles of pine oil adhere to the fine hair-like projections on the body of the bacteria and in this manner it is absorbed by the bacteria. This, in a sense, is the covering power of a disinfectant and the disinfectant which will cover the greatest number of bacteria efficiently per unit measure of disinfectant would have the highest phenol coefficient. From the very nature of those compounds present in pine oil which have bacteria killing power, the nature of the disinfectant, and the fact that the disinfectant is generally used in a diluted form, it is evident that the killing compounds must be reduced to small particle size and uniformly distributed throughout the dilution (emulsion) in order that all bacteria coming in contact with the disinfectant may be covered with a sufficient quantity of the active compounds to cause death.

THIRD Factor—The Emulsifying properties of the Emulsifying Agent or Base—As previously stated, in order that a pine oil may exert its greatest bacteria killing power, it is necessary that when diluted with water it should be in an extremely fine state of division and uniformly distributed throughout the water. This can only be done in the form of an emulsion or a colloidal solution and since no pine oil will emulsify alone with water or is soluble in it, then it follows that a reagent is necessary which will cause the formation of an emulsion or a colloidal solution. this being the case, then it is apparent that the emulsifying or dispersion properties of a base are of extreme importance and that the phenol coefficient of a disinfectant is dependent to a great extent upon the base used in its preparation.

The following table shows seven pine oil disinfectant concentrates, their compositions, the types of pine oils and bases used in their preparation, the tertiary alcohol content of the different pine oils, the condition of emulsions made with each disinfectant concentrate and the phenol coefficient of each disinfectant.

In the table below, the effects of the three factors above mentioned as influencing the phenol coefficient of a pine oil disinfectant are quite clearly shown.

Consider the first factor, i. e., the percentage of bacteria killing compounds or tertiary alcohols in the pine oils. Disinfectants Nos. 1, 2, 3 and 5 are identical in their compositions and the bases are the same. Each however, was prepared with a different type of pine oil. It will be observed that the phenol coefficient of Disinfectant ♯1 is 2.94, that of ♯3, 3.42, and ♯2 and ♯5 are the same, 3.15. In comparing the phenol coefficient of the disinfectants with the tertiary alcohol content of the different pine oils, it is quite clearly indicated that the phenol coefficient increases with an increase in the percentage of tertiary alcohols in the pine oils. This appears to be a general rather than a definite rule, for there are two exceptions which are, Disinfectants ♯3 and ♯5. The pine oil "F" in disinfectant ♯5 has a tertiary alcohol content less than pine oil "C" in Disinfectant ♯2. However, the phenol coefficient of Disinfectant ♯5 is the same as that of ♯2. On the other hand, pine oil "D" in Disinfectant ♯3 has a tertiary alcohol content assumed to be approximately the same as pine oil "A" which is considerably less than pine oils "C" and "F"; Disinfectant ♯3, however, has a higher phenol coefficient than either ♯2 or ♯5.

Refer now to Disinfectants ♯4 and ♯7. Both are identical in their composition with the exception of the type of base used. Here again we apparently have an exception, for as the same

Disinfectant	Type of Pine Oil	% Pine Oil	Type of Base	% Base	% Water	% Tertiary Alc. Content	Condition of Emulsion	Phenol Coefficient
1	A	66.0	♯1	27.1	6.9	64.1	Fair	2.94
2	C	66.0	♯1	27.1	6.9	75.5	Fair	3.15
3	D	66.0	♯1	27.1	6.9	....	Very Good	3.42
4	F	83.33	♯2	16.67	None	70.0	Very Good	5.25
5	F	66.0	♯1	27.1	6.9	70.0	Good	3.15
6	F	66.6	♯2	11.11	22.3	70.0	Very Good	4.07
7	F	83.33	♯3	16.67	None	70.0	Very Good	4.47

pine oil was used in each preparation, naturally the tertiary alcohol content was the same, and therefore the same phenol coefficient might be expected. This, however, is not the case, for there is a vast difference in the coefficient of the two disinfectants, that of Disinfectant ♯4 being 5.25 and that of ♯7, 4.47.

From these exceptions, it is evident that other factors exert an influence on the phenol coefficient, and now, let us consider the possibility of the other two factors, which are, the emulsifiable properties of the pine oils and the dispersion or emulsifying properties of the bases.

AS it is impossible to show in a table the appearance of emulsions very exactly and thus the emulsifiable properties of different types of pine oils and the emulsifying or dispersion properties of different bases, I will therefore state here the results of a rather extensive study of the behavior of different types of pine oils with different bases. In this study, the emulsions were classified into four general classes according to their appearance and behavior. These classes were designated as poor, fair, good and very good. Those emulsions which were extremely watery and very unstable were classified as poor. Those which were somewhat more opaque and slightly more stable were classified as fair. Those which were decidely opaque, but, when standing 24 hours separated as does milk and showed but very little if any free oil, were classified as good, and those which came under the class known as very good were the emulsions which were very opaque and showed no separation of any kind after standing 24 hours. The emulsions produced by the pine oils of types "A" and "C" were classified as poor or fair, those produced by pine oil of the type "F" were classified as good, and those which came under the classification of very good were produced with pine oil of the type "D".

Now, referring to the table, it will be observed that Disinfectant ♯2 has only the same phenol coefficient as ♯5 although Pine Oil "C" has a higher tertiary alcohol content than "F", but as pine oil "C" does not emulsify as well and does not form as good and efficient emulsions as "F", then it is readily understood why the phenol coefficient of Disinfectant ♯2 is no greater than that of ♯5. The explanation is, that the emulsifiable properties of pine oil "C" are not as good as pine oil "F". This same explanation applies to Disinfectant ♯3. Here we have a pine oil having a tertiary alcohol content of approximately the same as pine oil "A" and much less than pine oil "C", but due to its superior emulsifiable properties, its maximum bacteria killing power is obtained, and therefore the higher phenol coefficient of this type of pine oil over type "A" pine oil.

In other words, with all of the bases with which we have experimented to date, pine oil of the type "D", generally speaking, produces better emulsions than any of the other types, and because of this property, which is the emulsifiable property of pine oil, the tertiary alcohols are properly and efficiently dispersed throughout the diluted disinfectant (emulsion), and because of this the maximum amount of the tertiary alcohols are rendered available.

Of the bases with which we have so far experimented, the one represented by type ♯2 produces the best emulsions with any or all of the pine oils, and again referring to the table, it will be observed that the disinfectants having the highest phenol coefficients with a given pine oil contain the type ♯ 2 base, as Disinfectants ♯4 and ♯6. As a further comparison and to show the effect the base has on the phenol coefficient of a disinfectant note Disinfectants ♯4 and ♯7. These two products were produced with the same pine oil and the same amount, but each contains a different type of base. The phenol coefficient of ♯4, however, is higher than that of ♯7.

From this, the influence that a base has or may exert on the phenol coefficient of a pine oil disinfectant is very apparent, and that base which produces the best and most efficient emulsion would be expected to produce a disinfectant having the highest phenol coefficient when such disinfectant is prepared with a given pine oil.

It will be further observed that the phenol coefficient of a disinfectant changes in direct ratio to the pine oil concentrations when the same pine oil and base are used. The phenol coefficients of disinfectants ♯4 and ♯6 are 5.25 and 4.07 respectively, while the pine oil concentrations are 83.33% and 66.6%.

REFERRING to the emulsions, it will be observed that in general the higher the tertiary alcohol content of a pine oil is, the poorer are its emulsifiable properties, and therefore to produce good emulsions with pine oils rich in tertiary alcohols, it is necessary to use bases having very good emulifying properties. The bases referred to in the table as types 1, 2 and 3, are as follows: ♯1—Rosin Soap; ♯2—Unknown composition; ♯3—Linseed Oil Soap.

From the facts herein stated, it is definitely shown that the three factors, the tertiary alcohol content of a pine oil, the emulsifiable properties of a pine oil and the emulsifying properties of a base, are extremely important factors. Each exerts its influence on the phenol coefficient of a disinfectant and therefore a disinfectant manufacturer should give due consideration to these facts in order that he may prepare a disinfectant

(*Turn to Page* 80)

Labeling Paradichlorobenzene for Moth Control

A STATEMENT regarding the labeling of paradichlorobenzene preparations for the control of clothes moths has been issued by the Food and Drug Administration of the Department of Agriculture which summarizes the general rules recognized by the Administration in regard to paradichlorobenzene products. The statement says: "Paradichlorobenzene preparations intended for use for the control of clothes moths or other insects are subject to the provisions of the Federal insecticide act if shipped in interstate commerce, exported from or imported into the United States, or sold in the District of Columbia or in any territory of the United States. Under section 8 of that act, the labeling of such a product is prohibited from bearing any statement, design or device which is false or misleading in any particular, and if the preparation contains any inert substances, its label must bear an ingredient statement in the proper form."

Insecticidal Action

PARADICHLOROBENZENE is slowly volatile at ordinary temperature and acts as a gas (fumigant) to kill moths. Its effectiveness against them depends largely on three factors: the tightness and contents of the space treated, the length of exposure, and the amount of gas present. The first two conditions can readily be controlled, but the amount of gas given off is affected by many factors, the most important one being temperature. At temperatures of 70° F. and above, paradichlorobenzene crystals, when exposed to air, vaporize rather rapidly and confined air will hold enough of the gas to kill moths. At temperatures considerably below 70° F., it is possible that the confined air will not hold enough of the gas to be effective, but this limit has not been accurately determined.

The form in which the paradichlorobenzene is used (fine crystals, lumps, or cakes) and the surface exposed to the air, also greatly influence the rate of gas production. Other conditions being equal, the amount of gas given off in a definite period varies directly with the surface of the paradichlorobenzene exposed.

Under ordinary conditions, in tight closets, trunks, etc., where the gas is freely given off, a dosage of 1 pound of paradichlorobenzene crystals to 100 cubic feet of confined space should be effective. In an absolutely air-tight chamber at a temperature of 77° F., ½ pound of paradichlorobenzene will saturate 1,000 cubic feet of air. This dosage would not be satisfactory under usual household conditions.

The length of exposure necessary to kill moths varies with the temperature and the concentration of the gas, but at least two or three days should be allowed. If the form of the paradichlorobenzene, or its container, is such that the evolution of the gas is retarded, a greater dosage may be necessary, but this can be determined by actual tests only. Since the contents of the closet or trunk will take up a certain amount of the gas, more paradichlorobenzene will be required to treat one that is full than an empty one.

Deodorant Action

WHEN used as a deodorant, paradichlorobenzene covers or overcomes many objectionable odors with its own rather pervasive odor. It does not destroy or prevent odors nor is it of value in purifying or freshening the air. Paradichlorobenzene has been shown by extensive bacteriological tests to be ineffective as a disinfectant, either when used as a fumigant or in the presence of moisture.

Directions for Use

THE label and directions for these preparations should clearly cover the following points:

1. The use of the preparation should be restricted to tight containers where sufficient concentration of the gas can be obtained.

2. A specific dosage that will be effective should be recommended. This dosage should preferably be a definite number of grams, ounces, pounds or cakes (depending on the form of the material) to a certain number of cubic feet of confined space.

3. It should not be recommended as a protection against moths for furniture, upholstery, rugs, or carpets, unless the directions for use are such that the articles will be subjected to an effective dosage in tightly confined space when the

directions are followed. Merely placing paradichlorobenzene crystals or cakes on rugs and carpets, or in and around upholstery, is not a protection against moths, unless provisions are made to tightly enclose the treated articles and submit them to an adequate concentration of the gas. Paradichlorobenzene is not a repellent for moths nor will it drive away such insects as flies, roaches and ants.

Unwarranted Claims

SUCH claims as "Moth Repellent," "Drives away moths and insects," "Drives out moths, roaches, flies, etc.," should not be made. It should not be recommended for the control of moths in upholstery or furniture, unless it is used in sufficient dosage and in such a manner that the gas will be confined. It should not be recommended for destroying or preventing odors or for overcoming *all* odors. It should not be recommended as a disinfectant or germicide, for the control or prevention of diseases, or to purify the air.

Ingredient Statement

IF a preparation is composed entirely of paradichlorobenzene, it will contain no inert ingredients and no ingredient statement will be necessary. On such preparations a statement "Active Ingredients 100%" is allowable but the claim "100% Active" is objectionable as it may be taken to mean 100% effective. If any other ingredient is added, it will be necessary for the manufacturer to determine whether this ingredient is active or inert and, if it is inert, an ingredient statement will be required. Most of the essential oils frequently used in these preparations, are active against moths.

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Western Purchasing Co., El Paso, Texas, has opposed a rate of 99½c. per 100 pounds on coal-tar oil shipped from St. Louis to El Paso, on the grounds that creosote oil takes a rate of only 71½c.

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Plant of the Economy Hog and Cattle Powder Co., Shenandoah, Iowa, manufacturers of stock products, was damaged in a $25,000 blaze of undetermined origin Jan. 31. J. J. Doty is president. It is likely that the firm will rebuild at once. Branch factories of the firm are located in San Francisco and Fort Wayne, Ind.

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Clorox Chemical Co. has cancelled all distinction between its class A and B shares, and now has only one class of stock, numbering 118,156 shares, with an annual dividend rate of $2.

Propose Insecticide Standard

The Committee on Insecticides of the Insecticide & Disinfectant Manufacturers Association has submitted to the membership of the Association a proposal for the adoption of a definite official standard for liquid spraying insecticides for household use. The proposed standard calls for 95% "down" and a minimum "kill" of 60% by the Peet-Grady Method, and a hydrocarbon base with a minimum flashpoint of 120 deg. F.

The following has been sent to the membership by Charles P. McCormick, chairman of the Committee, and a vote is now being taken: "The Committee on Insecticides, appointed by President Stone at our last annual convention, was empowered to present to the membership a suggested standard for general adoption by the industry and fostered by Association members. This standard has been made a minimum standard so that every good quality insecticide may be sold in accordance with it and those desiring to put out a better product than that required are free to do so.

"Education of our members toward higher standards is necessary to elevate the industry, and after many deliberations the Insecticide Committee has voted unanimously in favor of the following standard: 'All Liquid Spray manufactured by members of the Insecticide & Disinfectant Manufacturers Association for household use, must show a 95% down and at least 60% kill on flies by the Peet-Grady method. In addition, the base should exceed 120 degrees flashpoint and should not be referred to as kerosene, kerosene petroleum or petroleum insecticide base in the future, but as a hydrocarbon distillate base.'

"It is felt that the standard should be a minimum standard so the public may be assured of a good insecticide and protected against too low a quality spray. Being a minimum standard and not a quality standard, it is hoped that every member of the industry affected will vote in the affirmative. To those members who are not packing liquid spray, we suggest that they vote in the affirmative because the leaders in the insecticide business believe this standard to be a fair one and must have the vote of the majority of members on this question. If you are not competent to pass on this, please signify your intentions by stating that what the majority see fit to do is in accord with your wishes. This standard will be for domestic business only and will not in any way affect the export business of the members."

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Exports of dental creams from United States during October, 1931, were valued at $149,652.

Say you saw it in SOAP!

Exterminators Hear Dr. Bocker

AT a meeting of the Society of Exterminators & Fumigators of New York, held Jan. 29, at the Knights of Columbus Club, New York, Dr. Edward Bocker, Chief of the Drug Division of the Board of Health of New York City, was the speaker of the evening. Fifty members of the association were present at the dinner to hear Dr. Bocker, who spoke on the proposed method of the Board of Health in enforcing the new amendment to the New York Sanitary Code covering fumigating and exterminating. Ira P. Mac Nair of the staff of *Soap* also spoke briefly. E. N. Goldey of Bliss Exterminator Co., president of the Society, presided at the meeting.

In his address, Dr. Bocker pointed out that the new regulations would become effective Feb. 1 and after that day, all fumigators, exterminators, and employes would have to be licensed to operate in New York City, and that a series of examination questions for the license test were being then formulated. He stated that a reasonable semi-technical knowledge of the toxic and other properties of the chemicals used in the work would be needed. He emphasized that the Board would be particularly certain that the licensed exterminator and fumigator knew his business inasmuch as the issuance of a license by the Board would tend to give to the public the impression that those licensed by the Board were ably qualified.

Dr. Bocker said further in part: "The Board urges you to start immediately in the use of the colored sodium fluoride. We cannot impress upon you too strongly our insistence that this regulation be followed to the letter. While it is sometimes customary to deal leniently with first violators of a new ordinance, it is the sense of the Board that vigorous action be immediately taken against initial violations of this provision.

"The Board fully realizes that it has a major problem in the licensing required by the Amendment and also realizes and is determined that the new regulations must be strictly enforced. These regulations may seem a hardship to you at first, but to you in the industry, who have always endeavored to lift it to a higher plane, will shortly come a full appreciation of their value. Once the regulations are in full operation and I assure you this will be as soon as possible, many so-called exterminators will probably themselves, be exterminated, owing to their inability to qualify.

"Just picture for a moment the confidence and reliability that will be established in the public mind with the knowledge that none but thoroughly qualified men, licensed by the Board of Health, can operate in the field and picture also the good-will and prosperity that should result with the elimination of the irresponsible 'exterminating bootlegger' who, with his poisons, the effect of which he knows nothing, has heretofore not only seriously retarded the progress of the business and kept public confidence at a low ebb, but has also many times wantonly sacrificed human and animal life in his careless and ignorant use of these poisons.

"I look forward to still closer contact and full support of your organization. I have assured your President that we will give you every opportunity to prepare for the examination. I have assured him that the Health Department will cooperate in every way with your organization and lend a sympathetic ear to any constructive proposal that you have occasion to submit. For you have as your Commissioner one of the most capable ever to hold the position. I want to congratulate your society on the splendid work it has performed. There was a crying need for just such an organization as yours. The Commissioner appreciates the fine cooperation given by your society."

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New sweeping compound specifications for the United States Government needs have been issued tentatively by the Federal Specifications Board with a view to securing criticisms and comments from interested manufacturers and others before making the specification final. Copies of the proposed specification can be secured from G. A. Rankin, chairman Chemical Products Committee, Federal Specifications Board, Washington, D. C.

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Associated Chain Drug Stores held its annual convention of five days aboard the Furness Bermuda Liner, "Monarch of Bermuda," from Feb. 4 to 9, as a sea-going convention. One day was spent ashore with headquarters at the Bermudiana Hotel in Hamilton, Bermuda. About 200 members of the Association made the trip.

Not to Review Maine Insecticide Law

In a decision handed down January 18 the Supreme Court of the United States denied a review of the action of the Maine Federal district court in refusing to issue an injunction against the Maine insecticide law which the United Drug Co. held to be an undue burden on its interstate commerce. The position of the drug company was that, since its interstate sale of packaged insecticides already complied with provisions of the Federal insecticide law, the State regulations, requiring licenses for the sale of insecticides and brand registration, constituted an undue burden. The Department of Agriculture of the State of New York entered the case in defense of the Maine law, pointing out that twenty-seven States have insecticide laws; that these laws are not aimed at interstate commerce but are intended to supplement the Federal act, and that the Federal law does not express or imply an intention to exclude such legislation as the Maine law. It was argued that all State regulation of foods, drugs, fertilizers, seeds, plants, and similar lines was endangered by the doctrine held by the United Drug Company.

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A firm of copartners manufacturing a chemical water for killing rats in a stipulation entered into with the Federal Trade Commission, has agreed to cease representing on labels attached to containers in which their products are packed, or in advertising matter, that the ingredients used by them in preparing their products have been approved by the Biological Survey of the United States Department of Agriculture, when such is not the fact.

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CLARKSON Chemical & Supply Co., Williamsport, Penna., recently completed overhauling and modernizing its plant in that city. A one-story addition was added to the factory late in 1931. A previous addition had been made to the original plant in 1928. The company was organized in 1919 by W. H. Clarkson and has grown steadily since that time. For 1931, it reported an increase of 18% in business over 1930. The firm manufactures insecticides, disinfectants, soaps and cleaners for the bulk trade. The officers of the company are W. H. Clarkson, president and general manager; M. M. Clarkson, vice-president; J. H. Bender, secretary and treasurer.

Bean 40 Years with McCormick

William Lee Bean, secretary-treasurer of McCormick & Co., Baltimore, completed forty years of service with the company, February 1. Starting as an office boy, Mr. Bean has worked his way through all departments, being appointed a director upon incorporation of the company in 1903. In his present position he is in charge of all credit matters. In celebration of the anniversary Mr. Bean was tendered a testimonial dinner, attended by officials of the company, and was the recipient of a handsome electric clock from the employees.

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Wild pyrethrum of the *Pyrethrum roseum* and the *Pyrethrum carneum* contain very little pyrethrins and have small insecticide value. The *P. cinnerariaefolium* of Europe (which can also be cultivated successfully in Crimea and North Caucasus) is not inferior to the best Japanese flowers. *P. macrofolium* resembles the *cinnerariaefolium* in pyrethrin content.—*Zhur. Prikladnoi Khim.*, 4, 383, 1931; *Chem. Abstr.*, 255, 1932.

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A disinfectant is prepared from a water-soluble thiocyanate such as potassium or sodium thiocyanate together with a small proportion of alkaline substances such as sodium carbonate so that the solution has a pH not exceeding 10.—U. S. Patent No. 1,823,095.

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Lower freight rates on creosote oil in tank cars from Birmingham, Ensley and Woodward, Ala., to Shreveport, La., have been denied by the Interstate Commerce Commission.

Say you saw it in SOAP!

F. D. A. Tests for Disinfectants

(*From Page* 103)

tion by other tests or by additional tests. This is particularly true of preparations that are not completely soluble or miscible in water. It is also true of certain preparations designated as antiseptics.

Soluble antiseptics or antiseptics completely miscible with water can be tested, of course, by the procedure already described as the F. D. A. *Staphylococcus aureus* phenol coefficient method. In the testing of these substances, however, the phenol coefficient is not obtained necessarily, the phenol figure being used merely as a check of the resistance of the test organism. The information desired is the concentration which will kill in five minutes.

In an effort to simulate practical conditions, it is frequently advisable to conduct the tests in the presence of blood serum. Sterile horse serum in a concentration of 10 per cent is ordinarily used, both in the germicidal and inhibitory tests. Special claims and uses of a product, however, frequently indicate the desirability of a higher concentration of this organic enrichment.

The following methods designed for the testing of insoluble and immiscible products are in use in this laboratory at the present time. Some of them have been used for years and have been described previously (6). Laboratory tests, of course, cannot duplicate the exact conditions found in practice. The procedures here outlined, however, are as close an approach to practical conditions as is feasible in routine laboratory tests, and reveal the obviously useless preparations. It should be noted that inhibitory tests are considered along with other facts in interpreting whether or not the substance will be of value in practical use. It must be remembered that not only bacteriological but physiological and pharmacological facts frequently must be taken into consideration in judging many substances.

The Wet Filter-Paper Method

The wet filter-paper method is a germicidal test rather than a test of inhibitory properties. It is used when the substance to be tested is not soluble or completely miscible with water, or for substances that are to be used in high concentration, such as soaps, tooth pastes, suppositories, dyes, dusting powders, salves, and ointments. If the substance is to be used in the body cavities the test is carried out at 37° C.; if not, the test is carried out at 20°, or at room temperatures, and the temperature is recorded.

No. 2 Whatman filter paper is cut into pieces about 0.5 cm. square, and sterilized in a plugged test tube at temperatures below 170° C. to prevent charring. A suitable number of the paper squares are then impregnated with *Staphylococcus aureus*, or other test organisms, by immersion in a 24-hour broth culture of the organism. The culture must have the standard resistance required for phenol coefficient testing. The wet inoculated squares are then placed in the liquid or solid substance to be tested in such a way as to be completely covered and in intimate contact. At the end of 5 minutes, 10 minutes, 15 minutes, or 1 hour, or any other desired length of time, the wet papers are removed with a sterilized, stiff, platinum wire bent at a sharp angle to form a hook and placed in 10 c. c. of sterile broth. After as much of the disinfectant as possible has been removed (in the case of sticky substances, the needle must be used to aid in freeing the squares of adherent germicide) the squares are retransferred to a fresh tube of sterile broth (10 c. c.) and the tubes incubated at 37° for 48 hours, when they are observed for evidence of growth.

It will be noted that in this test resubcultures are always required, since the first tube of broth to which the filter-paper squares have been added frequently contains sufficient antiseptic to exhibit inhibition of growth. Both tubes of broth are usually incubated.

The Dry Filter-Paper Method

The dry filter-paper method is used in tests of fumigants and of oils that are to be used where moisture is absent. It is similar to the wet filter-paper test, squares of paper being used that have been impregnated as described under the test above, except the squares are dried for two days in a sterile Petri dish in the 37° C. incubator. This test can be used successfully only with organisms capable of resisting the drying. *Eberthella typhi* will not withstand the drying. In the writers' work *Staphylococcus aureus* is the usual test organism. The inoculated dried paper squares may be used at any time after drying up to 30 days, but the resistance of the organism at no time should fall so low that it is incapable of withstanding a 1-80 dilution of phenol for five minutes at 20°. It should be noted that control tests with nonmedicated squares should always be carried out to test the viability of the test organism. As in the west filter-paper method, resubcultures are always necessary.

The Agar-Plate Method

The agar-plate method is a test for inhibitory properties and is used for substances remaining in contact, with the body in the absence of serous body fluids. Examples of substances which may be tested by this method are salves, dusting powders, creams, plasters, pads, adhesive tape, catgut, and suppositories. The test organism ordinarily used is *Staphylococcus aureus*, but for special purposes the test may be used with any organism capable of growing on agar. The agar is of the same composition as that previously described for carrying stock cultures of the test organism.

Fifteen to twenty cubic centimeters of agar is melted and cooled to 42°-45° C. To this is added 0.1 c. c. of a 24-hour broth culture of the test organism. The inoculated agar is then poured into sterile Petri plate and allowed to harden. As soon as the agar has hardened, the test substance is placed in intimate contact with the surface of the agar. If a salve, it is first warmed just sufficiently to soften it and thus secure a complete peripheral

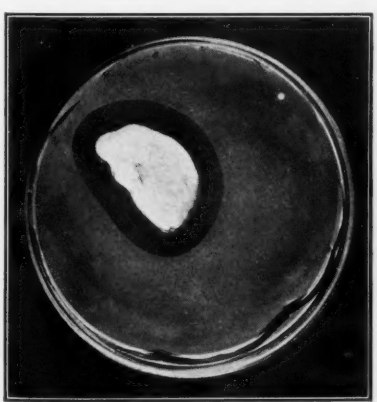

FIGURE 2.—Agar-plate method showing good antiseptic inhibitory properties and good diffusion (dark zone)

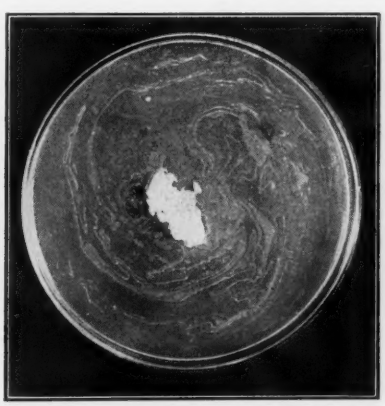

FIGURE 3.—Agar-plate method showing no antiseptic properties, or evidence of diffusion

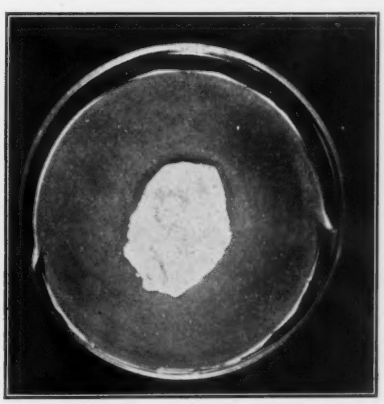

FIGURE 4.—Agar-plate method showing no antiseptic properties but good diffusion; note stimulation zone. (The culture medium has contracted because of drying)

contact. As a control, warmed sterile petrolatum may be placed on another portion of the plate. The plates are incubated 24-48 hours under unglazed porcelain tops at 37° C. and then are examined for evidence of inhibition. If the preparation is antiseptic or inhibitory, a zone of clear agar will be noted around the place where the substance has been in contact and the width of the zone will indicate the diffusibility of the inhibitory (antiseptic) agent. If there is no inhibition, growth of the test organism will be observed adjacent to and even under the test substance. (Figs. 2, 3, 4.)

The Serum Agar-Plate Method

Preparations recommended for use on open wounds, cuts, etc., will be effective only if they exhibit activity in the presence of serous fluids. In testing such preparations the agar-plate method is modified by the addition of 10 per cent sterile horse serum to the agar.

The Agar Cup-Plate Method[5]

The agar cup-plate method is merely a variation of the agar-plate method. It is to be used on products liquid at the temperature of the test. The agar or serum agar is inoculated as in the agar-plate method. Before the agar cools, a depression or cup is made in the medium by standing a sterile flat-bottomed glass tube, 1.5 cm. in diameter, in the liquefied agar. On hardening, the glass tube is removed by slightly twisting and pulling at the same time. Insertion of a sterile wire down the side of the tube for the introduction of air will eliminate much of the cracking of the agar. Another method of preparing the agar-cup plate is to allow the medium to harden and then cut out a disk in the agar, by means of a cork borer, 1.5 cm. in diameter. One or two drops of melted agar are placed in the cup to seal cracks or crevices. After the agar cup plate is prepared, 6 drops of the liquid to be tested are placed in the cup and the plate incubated under an unglazed porcelain top for 24 to 48 hours. If there is a clear zone about the cup, the substance under test has inhibitory properties. Here, as well as in the agar-plate test, the agar in the clear zone may be tested for growth by subculture in broth to indicate whether the action is germicidal or merely inhibitory. (Figs 5, 6, 7.)

Tests in the presence of Organic Matter

In general, the tests outlined above will take care of the bulk of the preparations coming to this laboratory. However, special tests may be required to determine the value of products recommended for certain purposes. For instance, recommendations on the label may make advisable the use of various additions of organic matter, such as increased amounts of peptone or the addition of gelatin, blood, ascitic fluid, saliva, urine, or feces, depending upon the information desired.

[5] The authors are indebted to L. C. Himebaugh for this method.

Method Applicable in a Given Case

Substance	Method Applicable
Soluble disinfectants:	
A. Preparations for general use[6]	Phenol coefficient—*E. typhi* at 20° C.
B. Preparations for antiseptic use	Phenol coefficient technic—*S. aureus* 20° C. or 37° C. as indicated.
C. Preparations for surgical instruments.	Phenol coefficient technic—*S. aureus* 20° C.
Insoluble and concentrated disinfectants:	
A. Preparations for general use (oils, tarry substances, powders, lime, etc.).	Wet filter paper—*E. typhi* and *S. aureus*. Room temperature.
B. Preparations for use on dry surfaces (spraying oils, sweeping compounds, powders, lime).	Dried filter paper—*S. aureus*. Room temperature.
C. Preparations for fumigation (filter paper exposed to gas in confined space).	Wet filter paper—*E. typhi* and *S. aureus;* room temperature. Dried filter paper—*S. Aureus;* room temperature. (Extension of time may be indicated.)
Soluble and liquid antiseptics:	
A. Preparations to be applied for a short time (washes, mouth washes, gargles, douches, etc.)	Phenol coefficient technic—*S. aureus* 20° C. or 37° C. as indicated.
B. Preparations for use on open wounds, etc. (washes).	Phenol coefficient technic—*S. aureus* 20° C. or 37° C. as indicated. (Tested in presence of 10 per cent serum.)
C. Preparations remaining on site of application (dyes, wet dressings, rubbing preparations, etc.).	Agar cup-plate.
D. Preparations for use on open wounds, etc. (dyes, wet dressings, etc.).	Serum agar cup-plate.
E. Preparations remaining on site of application but claiming germicidal properties.	Wet filter paper—*S. aureus* 37° C. Extension of time may be indicated.
Solid soluble antiseptics:	
A. Lozenges, tablets, etc.	Wet filter paper—*S. aureus* 20° C. or 37° C. as indicated. Note: Saturated aqueous solution or in dilution indicated.

[6] For oxidizing compounds and compounds depending on active chlorine, see p. 8. For compounds suspected of high inhibitory properties, such as mercury preparations, see p. 7.

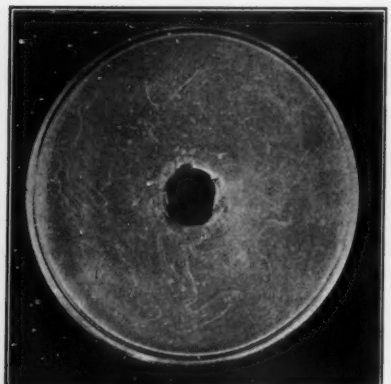

FIGURE 5.—Agar cup-plate method; no antiseptic properties; colonies grow to edge of cup

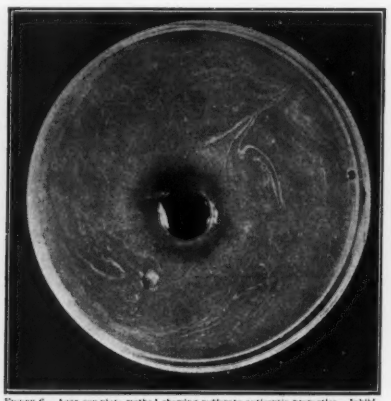

FIGURE 6.—Agar cup-plate method showing moderate antiseptic properties. Inhibition only fair; absolute inhibition confined to small area on one side of cup. Partial inhibition exhibited over wider area. An outside ring of stimulation may be noted

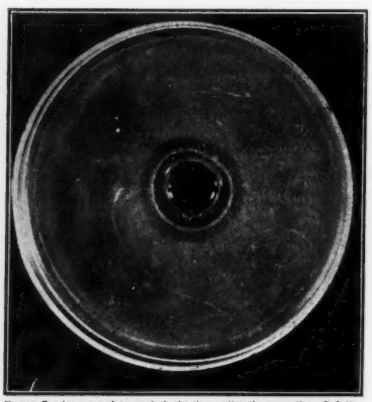

FIGURE 7.—Agar cup-plate method showing antiseptic properties. Definite inhibition zone surrounded by a stimulation zone and a secondary zone of partial inhibition

Insoluble and concentrated antiseptics:	
A. Preparations remaining on site of application (dusting powders, ointments, salves, suppositories, plasters, dressings, etc.)	Agar plate.
B. Preparations remaining on site of application but claiming germicidal properties.	Wet filter paper—*S. aureus* 37° C. Extension of time may be indicated.
C. Preparations for use on open wounds, etc.	Serum agar plate.
Antiseptic materials, appliances, etc.:	
A. Bandages, dressings, catgut, etc.	Serum agar plate.
B. Tape, pads, etc.....	Agar plate.
Solid and semisolid antiseptics:	
A. Preparations used for a short time (soaps, soap powders, tooth pastes, tooth powders, etc.).	Wet filter paper—*S. aureus* 20° C. or 37° C. as indicated. (Note: Undiluted and diluted with equal parts water or diluted with sufficient water to form a thick paste or heavy emulsion.)
Disinfectants and antiseptics for use in the absence of organic matter:	
A. Preparations for drinking water.[7]	Phenol coefficient technic—*E. typhi* 20° C. (Note: 0.1 c. c. of culture to 10 c. c. of diluted preparation.)
Intestinal antiseptics:[8]	

FIGURES USEFUL IN MAKING DILUTIONS IN TESTING DISINFECTANTS (11)

(5 c. c. of disinfectant+95 c. c. of distilled water= solution A)

Dilution	Solution A C. c.		Distilled water C. c.		Solution A C. c.		Distilled water C. c.		Solution A C. c.		Distilled water C. c.
1:20	= 20	+	0	or	10	+	0	or	4	+	0
1:25	= 20	+	5	or	10	+	2½	or	4	+	1
1:30	= 20	+	10	or	10	+	5	or	4	+	2
1:35	= 20	+	15	or	10	+	7½	or	4	+	3
1:40	= 20	+	20	or	10	+	10	or	4	+	4
1:45	= 20	+	25	or	10	+	12½	or	4	+	5
1:50	= 20	+	30	or	10	+	15	or	4	+	6
1:55	= 20	+	35	or	10	+	17½	or	4	+	7
1:60	= 20	+	40	or	10	+	20	or	4	+	8
1:65	= 20	+	45	or	10	+	22½	or	4	+	9
1:70	= 20	+	50	or	10	+	25	or	4	+	10
1:80	= 20	+	60	or	10	+	30	or	4	+	12
1:90	= 20	+	70	or	10	+	35	or	4	+	14
1:100	= 20	+	80	or	10	+	40	or	4	+	16
1:110	= 20	+	90	or	10	+	45	or	4	+	18
1:120	= 20	+	100	or	10	+	50	or	4	+	20
1:130	= 20	+	110	or	10	+	55	or	4	+	22
1:140	= 20	+	120	or	10	+	60	or	4	+	24
1:150	= 20	+	130	or	10	+	65	or	4	+	26
1:160	= 20	+	140	or	10	+	70	or	4	+	28
1:170	= 20	+	150	or	10	+	75	or	4	+	30
1:180	= 20	+	160	or	10	+	80	or	4	+	32
1:200	= 20	+	180	or	10	+	90	or	4	+	36
1:200	= 20	+	180	or	4	+	36	or	2	+	18
1:225	= 20	+	205	or	4	+	41	or	2	+	20½
1:250	= 20	+	230	or	4	+	46	or	2	+	23
1:275	= 20	+	255	or	4	+	51	or	2	+	25½
1:300	= 20	+	280	or	4	+	56	or	2	+	28
1:325	= 20	+	305	or	4	+	61	or	2	+	30½
1:350	= 20	+	330	or	4	+	66	or	2	+	33
1:375	= 20	+	355	or	4	+	71	or	2	+	35½
1:400	= 20	+	380	or	4	+	76	or	2	+	38
1:450	= 20	+	430	or	4	+	86	or	2	+	43
1:500	= 20	+	480	or	4	+	96	or	2	+	48

[7] In the cases where chlorine compounds are used for this purpose the effectiveness is usually judged on the basis of "available" chlorine content.

[8] Intestinal antiseptics do not readily lend themselves to laboratory tests. When medical opinion concerning the physiological and therapeutic properties of such preparations is to be confirmed by the results of bacteriological tests, the products may be considered to be germicidal only when tested in the presence of liberal amounts of organic matter, such as saliva, feces, etc.

(1 c. c. of disinfectant+99 c. c. of distilled water= solution B)

Dilution	Solution B C. c.		Distilled water C. c.		Solution B C. c.		Distilled water C. c.		Solution B C. c.		Distilled water C. c.
1:100	= 100	+	0	or	10	+	0				
1:110	= 100	+	10	or	10	+	1				
1:120	= 100	+	20	or	10	+	2				
1:130	= 100	+	30	or	10	+	3				
1:140	= 100	+	40	or	10	+	4				
1:150	= 100	+	50	or	10	+	5				
1:160	= 100	+	60	or	10	+	6				
1:180	= 100	+	80	or	10	+	8				
1:200	= 100	+	100	or	10	+	10	or	4	+	4
1:225	= 100	+	125	or	10	+	12½	or	4	+	5
1:250	= 100	+	150	or	10	+	15	or	4	+	6
1:275	= 100	+	175	or	10	+	17½	or	4	+	7
1:300	= 100	+	200	or	10	+	20	or	4	+	8
1:325	= 100	+	225	or	10	+	22½	or	4	+	9
1:350	= 100	+	250	or	10	+	25	or	4	+	10
1:375	= 100	+	275	or	10	+	27½	or	4	+	11
1:400	= 100	+	300	or	10	+	30	or	4	+	12
1:400	= 10	+	30	or	4	+	12	or	2	+	6
1:450	= 10	+	35	or	4	+	14	or	2	+	7
1:500	= 10	+	40	or	4	+	16	or	2	+	8
1:550	= 10	+	45	or	4	+	18	or	2	+	9
1:600	= 10	+	50	or	4	+	20	or	2	+	10
1:650	= 10	+	55	or	4	+	22	or	2	+	11
1:700	= 10	+	60	or	4	+	24	or	2	+	12
1:750	= 10	+	65	or	4	+	26	or	2	+	13
1:800	= 10	+	70	or	4	+	28	or	2	+	14
1:850	= 10	+	75	or	4	+	30	or	2	+	15
1:900	= 10	+	80	or	4	+	32	or	2	+	16
1:900	= 5	+	40	or	4	+	32	or	2	+	16
1:1,000	= 5	+	45	or	4	+	36	or	2	+	18
1:1,100	= 5	+	50	or	4	+	40	or	2	+	20
1:1,200	= 5	+	55	or	4	+	44	or	2	+	22
1:1,300	= 5	+	60	or	4	+	48	or	2	+	24
1:1,400	= 5	+	65	or	4	+	52	or	2	+	26
1:1,500	= 5	+	70	or	4	+	56	or	2	+	28
1:1,600	= 5	+	75	or	4	+	60	or	2	+	30
1:1,700	= 5	+	80	or	4	+	64	or	2	+	32
1:1,800	= 5	+	85	or	4	+	68	or	2	+	34
1:2,000	= 5	+	95	or	4	+	76	or	2	+	38
1:2,200	= 5	+	105	or	4	+	84	or	2	+	42
1:2,400	= 5	+	115	or	4	+	92	or	2	+	46
1:2,600	= 5	+	125	or	4	+	100	or	2	+	50
1:2,800	= 5	+	135	or	4	+	108	or	2	+	54
1:3,000	= 5	+	145	or	4	+	116	or	2	+	58
1:3,200	= 5	+	155	or	4	+	124	or	2	+	62

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